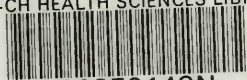


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The Health Bulletin

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Vol. 59

JANUARY, 1944

No. 1



THE JOHN H. SWEENEY FILTRATION PLANT
PART OF WILMINGTON'S NEW WATER SUPPLY SYSTEM

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Prenatal Care.	Baby's Daily Time Cards: Under 5 months;
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Breast Feeding.	Instruction for North Carolina Midwives.
Infant Care. The Prevention of Infantile Diarrhea.	
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Health Bulletin

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CARL V. REYNOLDS, M.D., State Health Officer

JOHN H. HAMILTON, M.D., Acting Editor

62 Years (Time Taken To Develop Present Water Supply at Wilmington)

By JAMES A. WESTBROOK, Dist. San. Engineer
North Carolina State Board of Health
Raleigh, North Carolina

ONLY 62 years ago, a North Carolina sea coast town had its first public water supply established. Yes, in 1881, the Clarendon Water Works, a private concern, was organized for the purpose of furnishing running water to the people of Wilmington, North Carolina. In fact, a pumping station was built on the banks of the North East Cape Fear River near the present plant in use today. Where did the Clarendon Water Works get the water? Surely not from the muddy, salty, dirty old North East River. What treatment did these people give the water? None at all, unheard of today, but 62 years ago, the North East River was not the muddy, salty, and dirty old river we think of today. Few sewers were in existence to dirty the stream, and no salt came up the river with the tides to cause taste to the water.

For 25 years, Wilmington received water from the Clarendon Pumping Station. During this time, sanitary engineers were finding the value of filtering water through sand to give protection against filth-borne diseases. With increasing filth getting into the North East River, it became necessary in 1906 to add filters to the water works. Three years later the city of Wilmington bought the water works, and in 1910 a new water treatment plant was built.

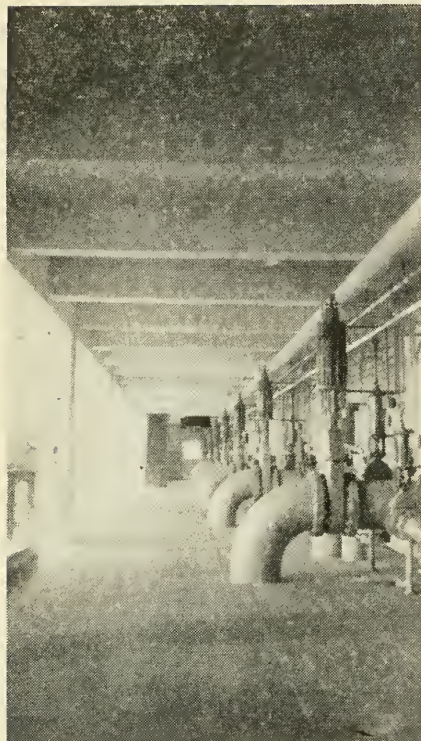
What about the salt in the river? Well, with a deeper channel in the river, along about 1923 salt began to come in with the tides and made the supply of water very unpleasant. Then the officials of Wilmington found it necessary to go to another source of supply. In the same year a pipe line was laid to Toomer's Creek, a short creek connecting into the Cape Fear River at both ends. This creek was, of course, up the river from the pumping station.

As the years went by, the salt in the river increased, and, with the tides, went on up the river into Toomer's Creek. In 1933, dams with gates were constructed at both ends of Toomer's Creek, and dykes were built along the creek. This gave protection against incoming salt water for a few years.

In 1936, an additional filter was added to take care of more water being sent through the treatment plant.

Starting in 1937, salt again entered into the story and has rendered the water undrinkable periodically to the present time. Now a new pipe line is being extended up the river to Hood's Creek, with the hope that salt will not appear at that point.

To go back for 20 years, we find Wilmington a quiet, peaceful seaport city of some 33,000 people. This population remained almost the same until 1941. Almost overnight,



PIPE GALLERY

this small city of 33,000 grew to a buzzing hive of shipbuilders, and military personnel. Today, Wilmington and outlying areas have something like 100,000 people.

What has become of the water treatment facilities of which Wilmington boasted many years ago? It has served its day, still producing safe water, but, like all plants of this nature, it was too small for the increased population. The city found it necessary to enlarge on its treatment facilities. A request was made of the Federal Works Agency for assistance in constructing a complete new plant. After a great deal of paper work, and obtaining of priorities (a present day necessary evil), work was started.

On December 9, 1943, the completed plant of seven million gallons' capacity was officially turned over to the city of Wilmington. The plant is the conventional type of water treat-

ment plant consisting of chemical treatment, mixing of chemicals, sedimentation, filtration, and chlorination.

This new plant, built with modern lines throughout, has a war-time touch with a minimum of critical materials. Upon entering the plant, you will notice beautiful wooden stairways, with wooden railings, painted with soft blending colors in keeping with soft colored walls. Simplicity, yet a neat appearance, strikes the eye throughout the plant.

Of significance are features of latest design in water treatment practice. One of them strikes you as you enter the filter gallery where the seven filters are operated. Here tables for controlling each filter sparkle with newness. As a valve is opened or closed, lighted buttons begin to flash, showing what

INTERIOR VIEW OF FILTER GALLERY,
PIPE GALLERY AND PUMP ROOM



FILTER GALLERY
WILMINGTON'S WATER PURIFICATION PLANT

is taking place as a valve opens or closes.

Another most helpful "gadget" to the plant chemist, and one which interests visitors, is the simple table located in the laboratory. Water from various points throughout the process of treatment is brought to the table by the simple snap of a switch. These samples from five different places—namely, raw water, treated water, settled water, filtered water, and finished water—run through five glass jars. At this point, a visual comparison can be made of the water. Also, samples for daily tests may be collected here.

A great deal of credit for the improvements

made and the present water system at Wilmington is due Mr. A. C. Nichols, City Manager, Mr. J. A. Loughlin, City Engineer, and Mr. M'Kean Maffitt for their efforts. Wilmington goes forward with another chapter written in water supply and treatment, with a new plant designed by Mr. W. C. Olsen, Consulting Engineer, Raleigh, N. C., and built by Mr. A. H. Guion, General Contractor, Charlotte, N. C.

While this does not complete the story, many more things to be told in the future, this is the present ending of a development started 62 years ago.

The Nation's Most Valuable Asset And Its Greatest Problem*

By HARVEY F. GARRISON, M. D.
Jackson, Mississippi

THERE are approximately thirty-six million children in our nation. These are the future citizens of the United States. Among them are our physicians, lawyers, engineers, statesmen, ministers and teachers of the future. Among them also are our rank-and-file citizens who form the backbone of any society.

During this war period, it is perhaps difficult

for us to look ahead to the time when these children of today will have taken their places; however, there is no more important time to look ahead than today when too many minds are pointed merely to the manifold problems

* President's Address, Southern Medical Association, Thirty-Seventh Annual Meeting, Cincinnati, Ohio, November 16-18, 1943. Reprinted by permission of Southern Medical Journal.

of the day. The thirty-six million children of America are our nation's most valuable assets, and we must realize its greatest problem as well. They are an asset in that they hold the potential power and greatness of our nation; they are a problem in that the care and training which they will receive within the period of childhood will make them and our nation with them superior or inferior.

As a pediatrician I am happy to announce that for five decades or more pediatricians of America have been a potent factor in the promotion of child health and in the dissemination of knowledge pertaining to child hygiene. They have contributed largely to the aggregate of pediatric knowledge, they have stimulated research, they have cooperated effectively in the elevation of the standards of medical education and of practice and they have encouraged the organization of innumerable agencies dedicated to the betterment of child welfare.

Unless the goddess Hygeia is our friend, life is truly a curse to man, woman, and child. We cannot enjoy the beauties of nature or man's great works when we are tortured by pain. Therefore, it is important that we guard our baby's health as the most precious jewel of his existence.

I believe from the moment a child is born until it passes beyond parental control, that its physical condition should be given the closest attention. If we are cultivating a grove of black walnut trees for profit or a cluster of rose bushes for beauty, there is no phase of their daily existence we miss.

As we cannot take care of a garden one week and neglect it the next, expecting the weeds to stay away, so with our children, we must guard them constantly. We hope the best for the coming generation. A hope implies a desire and an expectation. A true and genuine hope suggests a sincere responsibility. That responsibility we willingly and cheerfully accept.

The health of children is a responsibility not only of parents, nurses, and physicians, but of every person interested in achieving ultimate victory for democracy.

To win the war on land and sea and in the air will bring little reward if in the process the stability and happiness of the future population is jeopardized.

As doctors, perhaps we have been too closely concerned with gross pathology, too little concerned with positive health, which means much more than freedom from obvious disease. Other nations are making strenuous efforts to produce a generation fit for war. Surely we need no less a generation physically fit for the pursuits of peace.

Every child is a history of the race beginning again, entitled to a chance to become its best.

Of the thirty-six million children in our nation, it is estimated that about seven million are at least partly dependent on relief or public aid in their homes. The latest figures indicate that approximately 250,000 children are in institutions for dependent children, and it is estimated that at least 23,000 children are in state schools for delinquent children. There are approximately 365,000 in need of medical attention, and many others are suffering from conditions which if neglected will result in crippling. Last year in this nation more than 110,000 babies died in their first year of life or one out of every 21 Americans born alive. Tragic as these figures may seem, they represent a great advance since 1917, when one baby out of every eleven died. Even before 1917, indeed, since the early part of this century, some of the best pediatric minds in this country have attacked the problem of how to help each child become a healthy, well adjusted cooperative member of society. In spite of all efforts the child remains the nation's most valuable asset and its greatest problem.

Children are the future. They do not simply make it. They are the actual stuff of futurity. To build children is to build the future.

The war has brought a new desire for parenthood to many couples who had previously been indifferent to it. Though the average age of mothers is now much lower than formerly, a sizable number of first babies are being born to couples who have been married five to ten years.

As one 30-year-old expectant mother recently expressed it: "We thought we'd wait till we could own our own home . . . then a car . . . But the war has changed our sense of values. Material things don't seem so important. We want something real in our lives—something that's all our own."

The task of increasing the armed forces of the nation under the Selective Service Law of 1940 has offered an opportunity to evaluate the physical condition of the young men of our nation.

The study of the causes for rejection of these men by the Army may reveal certain trends and possibly indicate certain preventive measures for the benefit of the children of today.

The various causes for rejection for general military service are listed.

Certain of these defects may be prevented, certain ones are remediable, and many represent congenital defects or conditions for which the future holds little hope of improvement until medical science advances, the general economic status improves, education is more universal, or eugenics programs are more forcefully carried out.

The world needs better men and women, good as those of the present generation may be. Let us begin with the young, the boys and the girls, keeping them in health, sobriety, integrity, virtuous manhood and womanhood of the noblest stamp.

We as a nation are rightly concerned today with matters vital to our defense: with ships and armies and airplanes, with new death-dealing inventions, with production in defense industries. These things are important, but they deal with the present only. The kind of a country we will have forty years from now depends upon those who are just now starting life. Whether we keep our place as the foremost nation of the world, or whether we recede to an ignoble station; whether we are victorious in battle or whether we are to overcome by some foreign foe, depends upon the wisdom and the worth of those who come after us. In fact, every issue which is beyond the immediate present depends upon our sec-

ond line of defense, our American children. The newborn baby comes into the world handicapped or helped by its hereditary background and its maternal environment during pregnancy and labor. The hereditary influences go back through each parent for many generations.

To its ancestors the child must look for the potential qualities with which it begins its existence. From them come the color of its eyes and hair, the shape of its head, its body contours, the type of nervous system with which it is endowed, and all the other qualities by which an individual is characterized. Every child derives from its parents the material from which it is created.

If the man and woman who wish to have a child have been created from sound heritage, if they have been well nourished and protected from the ravages of disease or environment, if their emotional and mental development has been sane, they bring the richest gifts to their child.

In the children of a race lies its hope for future greatness. Let them be well born and well nurtured, given a chance for a normal development during a childhood protected from blighting influences, and they will grow to manhood and womanhood ready for complete participation in, and enhancement of, the world in which they live. An attempt to make this possible is our gift to children today.

There is nothing mysterious about children. If a father is disorderly, his son is liable to be so, too. If a mother is quick-tempered, she is liable to have a daughter who has tantrums. Parents usually see in their children a composite of what they were when they were young.

Today there are courses in parent-craft, and there should be. The children of trained parents are said to be more self-reliant, better able to make their own decisions than those of the untrained. They are said to have initiative and enterprise and to be working nearer the limit of their capacity, to be sounder in health, and to be more tolerant and courteous and unafraid.

Parents are learning that the first few years of a child's life are the most important, and a study of the spoiled child problem shows that children do not outgrow early habits as soon as parents think they will. Many of them go through life with these attitudes and then develop mental and nervous breakdowns when they find they are not equipped to meet bravely the vicissitudes and responsibilities of adult existence.

When your child's health is disturbed, growth slows down. When growth and health are disturbed, development is retarded and your better citizen has been interfered with.

But your child's prospect of becoming a better citizen does not depend entirely on the state of his physical health. Your boy and your girl must learn to adjust themselves to the social and economic conditions that surround them. What would be the good of bringing up a child in perfect health and have him, because of lack of training in the home, develop into a bank robber, a drunkard, or a drug addict?

The ability of your child to adjust himself to the world depends, to a large extent, on the type of training he gets at home, and on the habits that he is taught. Every step of the adjustment made by the child requires training.

Home, church, and school should combine in building your child's personality from the point shortly after birth until he has reached maturity. This will require continued efforts to meet the changing needs of the youngster. Rearing a child properly is the most difficult job any of us can face. But in the end, there is just about the greatest satisfaction we can know, that of having created a successful citizen.

During these trying times of war, the responsibility of the medical profession is burdened not only with the care of the armed forces, but the civilian population must have adequate medical attention. In no field is this more important than in the care of the expectant mother. Upon her and her offspring rest the duty and responsibility of reconstruction of a better world and a permanent peace.

So we must not be content with the progress already made in maternal care, but must continue to improve that care till the deaths from maternal causes will be lowered to the irreducible minimum. Until that goal is reached, none of us as physicians will cease our efforts to improve the care of women in child-birth.

"Human life in this country is not held in high esteem if we are to judge by the recklessness with which the lives of mothers are wasted," says Dr. Thomas Parran, Surgeon General United States Public Health Service. The mortality figures are appalling, more women dying between the ages of fifteen and forty-five from diseases of pregnancy and motherhood than from any other cause, except tuberculosis. The tragedy is more distressing when it is known that many of these deaths are preventable.

Maternity care is what needs emphasis, not prenatal care, not delivery care, not postpartal care. No one phase of care is more important than the other two and all lose value if any one phase is weak, or late, or missing.

Total maternity care: that is it; total care keyed to fit into and enhance total living provided for all expectant parents in all of America.

At a White House Conference on Child Care it was pointed out that if every woman would consult her physician just as soon as she has reason to think a baby is coming, and at regular intervals thereafter, 10,000 more American mothers would live each year to rear and cherish their children.

We have observed that today's adults enjoy a more abundant life because of even the partial and incomplete health care given yesterday's children. We are now attempting to complete the cycle by smoothing the way for tomorrow's children through intensification of health efforts and providing better preventive care for the parents and prospective parents of today. More and more of tomorrow's children will arrive with a welcome greeting from their parents and with a community ever more ready to use a larger portion of available resources in proving our belief that children are

our most valuable crop and that child life is far more worthy of conservation than even our soil, our forests and our soil resources. In fact, conservation might well be our watchword in our consideration of tomorrow's children. The child of today, the citizen of tomorrow, is going to need all the fortitude, courage, and adaptability of the first settlers to work out a happy and successful existence. What can we do to help him?

As physicians, our first thoughts are naturally devoted to preserving for these children healthy bodies and normal minds.

The child's health is like the foundation of a new home. It is the basis upon which the future structure must stand. Unless the foundation is firmly laid, the completed building will be an unsatisfactory one. Its insecure foundation will make it only half tenable and the upkeep of such a structure will be far out of proportion to that of maintaining a structure erected on enduring principles.

Just as important as preserving the health of our children is teaching them to use their bodies and minds to obtain both mental and economic security. I believe that children should be taught to work and to adapt themselves to any situation. The average American child is adaptable and will learn to take care of himself if the occasion arises. In recent years, however, the trend has been to give the child more and more pleasures and to require less and less the assumption of any duties. To give much and expect little is the usual custom of the American parent. This

theory may be all right if the conditions the child will face are those that will conform to a familiar pattern. On the other hand, is it fair now to make life for the child a bed of roses when the path to be trod in the future may be covered with thorns instead of rose petals? We should teach him to work. The more anyone is able to do for himself, the better he will be fitted to face any situation in which he may be placed. A gradual realization that changes are taking place is much better for a young mind than the sudden discovery of the fact. Unquestionably, the present younger generation is not so well fitted to face the vicissitudes of life as were their parents. It is not their fault, but the fault of their parents, who want the best for their children and who are putting protective walls around them. Many parents pride themselves on making things easy for their children, and by the very giving and spoiling have wrecked their chances of happiness.

If our nation is to go forward, if this democracy is to survive and lead the world, we must impress our people that we must have the best, the strongest, and the most intelligent boys and girls of any nation. We must see to it that they are born of healthy parents, that they are born in healthful surroundings, that they are given the best of medical and nursing care, that they are properly educated, and that they are taught to know and respect God and their nation. No nation can stand without these essentials.

Care Of The Premature Infant

By MERL J. CARSON, M. D.

Pediatric Consultant

North Carolina State Board of Health

Raleigh, North Carolina

DURING the past eight years a great deal of emphasis has been laid on proper care of infants. Well baby clinics have been started throughout the State and educational programs have helped to give a clearer understanding of the value of good child care. There has been

a steady decrease in infant mortality because of better prevention and treatment of diseases during the first year of life. Why, then, has the mortality due to prematurity been changed so little? Many persons have shown that if these premature infants are given good care.

and attention, their mortality rate can be reduced markedly. Of course it is necessary to spend a great deal of care and trouble, but if a baby's life can be saved, any amount of trouble is justified. Many people have little interest in these infants because they feel that they will probably be feeble-minded when they grow up. Scientific research has found that a premature infant is no more likely to be feeble-minded than a full term baby.

Any infant who weighs less than $5\frac{1}{2}$ pounds at birth may be considered a premature infant. It is important that the size of the infant be taken as the measure of prematurity rather than the length of time the mother is pregnant because of the wide variation in weights of newborns whose mothers are supposed to have been pregnant for the same length of time. These infants are usually poorly developed and therefore have difficulty surviving. Frequently they have not enough strength to nurse the breast or a bottle and sometimes cannot even swallow. Their resistance to infection is very low. The mechanisms by which correct body temperature is maintained are usually poorly developed so that they become chilled very easily.

There are three essentials in caring for these infants: 1. Proper temperature and humidity must be provided. 2. Proper nutrition must be provided. 3. Infection must be avoided.

1. In order to provide proper temperature and humidity, it is usually necessary to either obtain or make, an incubator, which can be heated. These may be bought, but as they are usually very expensive, they are usually only seen in hospitals. Simple ones may easily be constructed from wooden crates, or cardboard boxes. These may be lined with cloth and a small pillow may be used on the bottom as a mattress. The lining can be divided into several small pockets which may be used to hold flat bottles of hot water to furnish heat. A pan of water kept on the stove in the room will provide enough water in the air to keep the humidity at a proper level. Flannel or wool garments are best for dressing the infant. They should be simply made so as to cover

his body loosely but completely, and should be made so they can be put on or taken off without bothering him too much.

When the infant is to be delivered at home, the incubator should be prepared in advance. It should be heated and blankets should be warmed to wrap him in to prevent chilling after birth.

2. Proper nutrition is essential if the baby is to grow and develop normally. For this reason food must be given. All newborn infants normally lose a few ounces of weight during the first few days of life, and then, if they are adequately fed, slowly regain this. Premature infants do the same thing, so one must expect this weight loss and not be alarmed and not try to feed the infant too much.

Before giving anything by mouth, one should wait until the infant has fully recovered from the shock of being born. It may take from 12 to 36 hours in some cases before the infant has begun to breathe regularly and easily, without having blue spells, choking or vomiting. It is only at this time that one can begin giving anything by mouth. First, find out how this can be done. Usually if the infant is strong enough to nurse, he can be fed on a small nipple and bottle. Most of them are too weak to nurse the breast so that breast milk should be pumped from the mother's breast and fed with the small nipple and bottle. Many of them will be too weak to nurse a nipple and will have to be fed with a medicine dropper. To do this, cover the tip of the dropper with a small piece of rubber tubing which projects just beyond the glass tip, and with this, small amounts of milk may be put in the infant's mouth. Here again it is necessary that the baby be able to swallow the milk without choking or turning blue. Occasionally they will be too poorly developed to even swallow milk put in their mouths, and in these cases the feedings have to be given through a tube which is passed through the mouth into the stomach. This procedure is very complicated and should only be done by someone trained particularly in this work.

When preparing feedings, all utensils must

North Carolina State Board of Health

SUGGESTED FEEDING SCHEDULE FOR PREMATURE BABIES

Babies Weighing Less Than 3½ Lbs.

Babies Weighing 3½-4½ Lbs.

Babies Weighing 4½-5½ Lbs.

	Breast Milk		Boiled Water		Breast Milk		Boiled Water		Breast Milk		Boiled Water		Breast Milk		Boiled Water	
	Times Given	Amount Teaspoons	Times Given	Amount Teaspoons	Times Given	Amount Teaspoons	Times Given	Amount Teaspoons	Times Given	Amount Teaspoons	Times Given	Amount Teaspoons	Times Given	Amount Teaspoons	Times Given	Amount Teaspoons
1st 12 hours	..	.....	..	.....	..	.....	2	½	..	.....	..	.....	..	.....	3	1
13th hour	..	.....	..	½	..	.....	..	½	..	.....	..	.....	..	.....	..	1
16th hour	..	.....	..	½	..	.....	..	½-1	..	.....	..	.....	..	.....	..	1
18th hour	..	½	..	.....	..	.....	..	.....	..	.....	..	.....	..	1	..	..
20th hour	..	.....	..	½	..	.....	..	½-1	..	.....	..	.....	..	.....	..	1-2
22nd hour	..	½	..	.....	..	.....	..	.....	..	.....	..	.....	..	.....	..	..
2nd day	8	½-1	6	1-1½	8	1-2	6	1-2	8	1-2	6	1-2	8	2-3	6	2-3
3rd day	8	1-1½	6	1½-2	8	1½-3	6	2-2½	8	2-2½	6	2-2½	8	3-4	6	2-4
4th day	8	1½-2½	6	2-2½	8	2½-4	6	2½-3½	8	2½-3½	6	2½-3½	8	4-6	6	3-4
5th-7th day	8	2-3	6	2½-3	8	3-5	6	3½-4	8	3½-4	6	3½-4	8	5-8	6	4
8th-10th day	8	3-4	6	2-3	8	4-6	6	3	8	3	6	3	8	6-9	6	3
11th-14th day	8	3½-5	6	2-3	8	5-7	4	3	8	3	4	3	8	6-9	6	3
15th-17th day	8	4-5½	6	2-3	8	1-1½ oz.	4	½	8	1¼-1¾ oz.	3	½ oz.	8	1¼-1¾	3	½ oz.
18th-21st day	8	4-5½	6	2-3	8	1-1½	3	½	8	1¼-1¾	3	½	8	1¼-1¾	3	½
														or (6	3	½

NOTE: The schedule is arranged so that milk is given every 3 hrs. at 3, 6, 9 and 12 o'clock. Water is given midway between feedings except at 1:30 a. m. and 4:30 a. m. It may be necessary to feed very small or weak infants every 2 hrs. Increase in the feeding should be made gradually, not more than ½ tsp. at a feeding. For infants weighing less than 2½ lbs. the increase should not be more than ¼ tsp. at a feeding. When the baby is taking 2½ to 3 ounces of breast milk per pound he is receiving as much as is usually necessary for gain in weight. Further increase in feeding is made as the baby gains weight and therefore requires more food to supply 2½ to 2 ounces per pound. After the baby has begun to gain satisfactorily and is taking his feedings well, the interval between feedings may be increased and more milk given at each feeding.

be carefully boiled and sterilized before using. A very satisfactory schedule to begin on is to give feedings every two or three hours. At first these should consist of sterile boiled water, given in small amounts of usually 5cc at a time. The amount may be increased gradually and either breast milk or formula substituted for the water. The following schedule copied from "The Premature Infant," a publication of the U. S. Children's Bureau, shows this very well.

In addition to the milk and water, these infants need more vitamins than the normal, full term child. For that reason cod liver oil is begun as soon as possible, usually at about two or three weeks of age. The concentrated forms are best and it requires about four times as much for the prematures as it does for a normal, full term infant. Of the concentrated Percomorph oils, 20 to 30 drops each day is usually sufficient. Orange juice should be started during the same period to furnish vitamin C. They will need approximately two ounces daily. One should begin

with a few drops and gradually increase the amount given each day, until the infant is able to take two ounces each day.

3. Any infection is extremely dangerous for these infants. For that reason, everyone who is sick must stay away from him. All of his food must be handled very carefully in order to avoid any contamination. All utensils used in preparing this food must be sterilized. Whenever possible one person alone should be responsible for his care, and all other persons should stay away from him. Everyone should wear a mask over their noses and mouths when caring for him, and a clean gown or smock should be worn. These few simple precautions will cut down tremendously on the infections given to these babies and will help more of them to live through this difficult first period.

The important thing to remember is that the premature infant is worth fighting for, and if given proper attention and care, he will develop into just as fine a child as a full term newborn infant.

A Letter

By MISS IRENE LASSITER, R. N.
Public Health Nurse in Harnett County
Lillington, North Carolina

Nell Russell
Sec. Lt.
Armed Forces
Somewhere in England

DEAR Nell,

Last Sunday I picked up the Philadelphia Inquirer and after reading the news section I looked through the "Everybody's Weekly." You can't imagine my delight in seeing your picture taken somewhere in England.

It was so like you, Nell, to be right on the front line of whatever is new in nursing, even though it be on the fighting front! I felt mighty proud that I knew you—as proud as I was the night I bought you your first Bellevue cap. I thought then that the teaching profession's loss was the nursing profession's

gain. Now I'm sure of it! This war changed your plans I know; I was awfully disappointed that you didn't get into Public Health, but war has a way of changing all our plans. Maybe when you come back you will find the Public Health field larger than when you left. I also believe that you will find the people more interested in their health.

Remember our old discussion on how the people should be taught health in general? Well, this war has put that over for us in a big way. Good articles on health, diet and disease are being published in almost every magazine and believe it or not, Mr. John Doe Public is reading every line! Maybe the shortage of doctors and nurses has made the public more health minded—or maybe the Federal

Government has forced the issue with all their pamphlets on diet and health. (You can get good pamphlets on almost every subject in the land for just the asking and the new Infant Care books that you get from the Health Department have pictures in them!) I can't put my finger on the "why" but I can say the articles are plum good and educational. Another thing that this war has done for us is to bring the people out to Red Cross First Aid classes and the Red Cross Home Nursing class. I'm 'specially interested in the Home Nursing classes and feel that every Public Health Nurse should urge her mothers to take this course. These classes have really proven their value to me. They have also made me do some studying, for it has been so long since I've been in a hospital that I've forgotten and gotten behind on the latest technique. I had a regular "line" for my communicable disease cases but no more. Now when I visit a communicable case, I ask the mother first "Have you had the Red Cross Home Nursing Classes?", and if she says "yes"—believe me I watch my step for these mothers are up to date!

I've heard some criticism that the public would get mixed up on some of the medical jaw breakers. So what? Maybe the public won't remember that today medicine thinks that rheumatic fever, my pet enemy, is caused by the hemolytic streptococcus. They will remember the signs and symptoms of rheumatic fever. No more will Mary's sore throat be just a sore throat or joint pains "growing pains." Every mother will think of early symptoms, diagnosis and the stress laid on the care of the rheumatic child. When I think of the death toll of rheumatic fever cases yearly, I wonder if one wouldn't be safer in Italy dodging bullets. Of course I've a phobia on rheumatic fever—after fighting it for twelve years, who wouldn't—but I truly feel that to get the public interested in early symptoms of any disease is a feather in our caps.

Tell the to-be fathers not to worry over their wives, Nell. That's another good point for this war. The Government is taking care of the boys' wives, that is up to sergeants. Guess the Government feels that the C.O.'s are capable of managing their own affairs. But Nell, it's a dream come true; women being taught the value of anti-partum care, being told to go see their doctor at least five times before delivery, and then to go back six weeks after delivery for a check-up on themselves and their babies. Can't you just see what this is going to mean to our future mothers? A mother once under good medical care for herself and baby is going to demand the same treatment next time. There's another phase to it too—"I do what my neighbors do," so mothers in the country over are going to demand and receive good delivery service. Isn't it wonderful? When you nurses come back from over seas, it won't be like pulling eye teeth to get a maternity clinic started. Just dare not have one!

Well, Nell, I guess I've rambled enough, but seeing your picture in the paper today makes me think back on the days when we were going to change nursing! You are doing your part and I felt so smug and secure here in my little house that I began to wonder if I was doing mine. Then I thought of some of the things that we are trying to do over here, not big things like facing fire—I realize that—but someone has to keep the home front safe. After all, won't our boys be better fighters if they know their families are being cared for? I think so. Each Public Health nurse has a big job on her hands for it is up to us to see that the boys come home to happy, healthy families. You tell the boys that what North Carolina is doing, all the states are doing and that the Public Health nurse is taking her place like a true soldier.

Do write when you have a chance.

Irene.

Notes & Comment

By THE ACTING EDITOR

AN OLD FRIEND IT is always a pleasure to meet an old friend. It is especially pleasant to meet a friend after several years have passed since our last meeting. If the old friend has rendered valuable assistance to us during the years of our youth, there is something deeper than pleasure when we meet again. In turning the pages of one of our favorite health publications, the *Monthly Bulletin of the Indiana State Board of Health*, we experienced the thrill of seeing a poem which has contributed a great deal to the modern public health program. During the days when health workers valiantly struggled for a few dollars to add to their budget, the poem, "Fence or Ambulance" was used in a multitude of ways. It was printed in practically every health publication in the United States. It was quoted and misquoted by health officers throughout the land. It is recited in practically every schoolroom. It was plagiarized and adapted until few people knew the poem in its original form. It inspired thousands upon thousands of posters when poster contests were conducted in every school. From the crudest of cartoons to genuine attempts at artistic expression, the cliff, the fence and the ambulance were before the eyes of all poster contest judges.

A considerable amount of research work on the part of Dr. Thurman B. Rice, editor of the *Indiana Bulletin*, with the assistance of Miss Hazel Felleman, editor of *Queries and Answers*, *New York Times*, has established the fact that the poem was written by one Joseph Malins and that the author was presumably an Englishman. It is probable that the poem was written a few years prior to 1878. We feel that the usefulness of our friend has not passed with the years and that a great many of our readers will enjoy seeing an authentic reproduction.

FENCE OR AMBULANCE

"Twas a dangerous cliff, as they freely confessed,

Though to walk near its crest was so pleasant;

But over its terrible edge there had slipped
A duke, and full many a peasant;

So the people said something would have to
be done

But their projects did not at all tally.

Some said, "Put a fence around the edge of
the cliff,"

Some, "An ambulance down in the valley."

But the cry for the ambulance carried the day,
For it spread through the neighboring city;

A fence may be useful or not, it is true,

But each heart became brimful of pity

For those who slipped over that dangerous
cliff,

And the dwellers in highway and alley

Gave pounds or gave pence, not to put up a
fence

But an ambulance down in the valley.

"For the cliff is all right if you're careful,"
they said,

"And if folks even slip and are dropping,

It isn't the slipping that hurts them so much
As the shock down below when they're
stopping;"

So day after day as those mishaps occurred,

Quick forth would these rescuers sally,

To pick up the victims who fell off the cliff
With the ambulance down in the alley.

Then an old sage remarked, "It's a marvel
to me

That people give far more attention

To repairing results than to stopping the cause,

When they'd much better aim at prevention,

"Let us stop at its source all this mischief,"
cried he,

"Come, neighbors and friends, let us rally;

If the cliff we will fence we might almost
dispense

With the ambulance down in the valley."

"Oh, he's fanatic," the others rejoined

"Dispense with the ambulance? Never!

He'd dispense with all charities, too, if he could,

No, No! We'll support them forever!

Aren't we picking folk up just as fast as they fall?

And shall this man dictate to us? Shall he? Why should people of sense stop to put up a fence

While their ambulance works in the valley?"

But a sensible few, who are practical too,

Will not bear with such nonsense much longer;

They believe that prevention is better than cure,

And their party will soon be the stronger, Encourage them, then, with your purse, voice and pen,

And (while other philanthropists dally)

They will scorn all pretense and put a stout fence

On the cliff that hangs over the valley.

Better guide well the young than reclaim them when old,

For the voice of true wisdom is calling;

To rescue the fallen is good, but 'tis best

To prevent other people from falling;

Better close up the source of temptation and crime

Than deliver from dungeon or galley;

Better put a strong fence 'round the top of the cliff

Than an ambulance down in the valley.

TYPHOID FEVER IN CHILDREN

Altogether too many people are of the opinion

that typhoid fever does not occur in children. Dr. Angus McBryde and Frank Ledesman-Dias of the Department of Pediatrics, Duke Hospital and Duke Medical School, presented a paper before the Section of Pediatrics of the Medical Society of the State of North Carolina at its last meeting in Raleigh, in which they reported 46 proven cases of typhoid fever in patients under 14 years of age. This paper was published in the November, 1943 issue of the North Carolina Medical Journal. Of the 46 patients, 25 were white and 14 were negroes. Thirty of the 46 patients were six years of age or less; ten were under 2 years of age; the youngest was six months old. Prolonged fever was the most frequent symptom. Abdominal distention with tenderness were the most common physical findings. Only six of these 46 patients had ever had any typhoid vaccine and 3 of these had been given vaccine after exposure, but too late to afford any protection. This paper should be especially helpful to physicians, but parents should realize that children do have typhoid fever and that these children should be protected by typhoid vaccine.

How To Prevent Colds*

IN 1908 my father built a sleeping porch on our house. We would all sleep out there in the winter, if it got cold enough, he said, and we wouldn't have any more colds. So we slept out on the sleeping porch. All I can remember about it now is that we had fun out there but I was tired all the time and was glad to get to school where I could sleep.

Then we started taking cold baths. My father rigged up a rubber shower contraption so that everybody could get up and have an

ice-water shower first thing in the morning. That was so that we wouldn't have any more colds. Cold showers went on for quite a while and were very jolly. Everybody slapped and snorted and shrieked in his turn and then waited to hear the next victim. We caught father using some warm water one morning, so the whole system broke down. I don't remember having any colds in those days but that was forty years ago.

* An editorial in The Journal Lancet.

When I got older and left home, I didn't do anything about colds except carry a handkerchief. Those were busy, exciting days in which I don't remember about colds. Otherwise occupied.

Now, in the year 1943, my wife says we should do something so the children won't have colds. She turns to me because I am a doctor and she doesn't know any better. Well, let's see, there have been quite a few fads about colds. Sunlamps, codliver oil, vaccines, and now we sleep with the windows closed. I think maybe the best thing would be to build a sleeping porch where the kids can take up the family pillow fights where they left off in 1910. I don't remember any colds then—or much of anything else.

Colds May Lead to Serious Diseases**

In addition to the great number of man-hours lost through the common cold itself, this infection is important because of its relationship to other respiratory diseases. By weakening the tissues of our nose and throat, it allows infection to spread into our sinuses causing sinusitis, into our ears with resulting inflammation of the middle ear and mastoiditis, or into our lungs to cause bronchitis and pneumonia. A cold may permit invasion of our tissues by the common streptococcus germ with resulting septic sore throat, scarlet fever or possibly rheumatic fever. Although symptoms from a cold are usually mild and death rarely if ever occurs from the cold itself, the large number of individuals affected and the seriousness of the complicating diseases make us consider the common cold among the most important communicable diseases in this part of the world.

How Colds Are Spread

What makes colds so prevalent that millions of people are affected year after year? The causative agent of the common cold is one of the most contagious germs we know of and infection can be spread by breathing in the air of a room which has been contaminated by the coughing, sneezing or even talking by a person infected with the cold germ. In a room, bus or crowded auditorium, a sneeze or cough may so fill the air with respiratory

germs of all sorts that everyone in close proximity to the offender will be infected. A person may also be infected by handling contaminated articles used by an infected person, by kissing an individual with symptoms of a cold, or by other means of direct contact. There are a number of predisposing factors which make us more susceptible to respiratory diseases and these include exposure to extreme cold or dampness with resultant chilling of our body, excesses of alcohol, poor nutrition and chronic diseases of various types. Recovery from the common cold results in an immunity which is only temporary and of short duration so that we may have more than one cold during a season and year after year.

Experiments on Prevention

Recent experiments in air sterilization by means of ultra-violet light or chemical sprays have shown that the air in a room may be sterilized readily and the spread of contagious respiratory diseases thus limited. Since these methods are still in the experimental stage and have been applied chiefly to hospitals or schoolrooms, their general use must be reserved for the future. In the home or auditorium, our best method of keeping the air clean and free of germs is by adding pure air from the outside. This also permits a loss of heat, this method is restricted during cold weather because of the shortage of fuel.

Known Preventive Measures

What can we do to prevent colds or at least to minimize their effects? We can keep up our general health and maintain a high resistance to infection by the medium of a well-balanced diet with plenty of proteins, minerals and vitamins, with sufficient rest, cleanliness and adequate recreation. We can avoid chilling and exposure during cold and damp weather by dressing warmly and sensibly. We can prevent infection by avoiding those who have a cold or other respiratory illness. If we ourselves are infected we can often suppress or at least cover with a handkerchief our cough or sneeze, especially in a crowded bus or room. If we become ill with a cold and fever, we can stay home.

** From Weekly Bulletin, Connecticut State Department of Health.

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CONTROL BUILDING, SEWAGE TREATMENT PLANT
ROCKY MOUNT, NORTH CAROLINA

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The State Board of Health publishes monthly THE HEALTH BULLETIN, which will be sent free to any citizen requesting it. The Board also has available for distribution without charge special literature on the following subjects. Ask for any in which you may be interested:

Adenoids and Tonsils	German Measles	Sanitary Privies
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SPECIAL LITERATURE ON MATERNITY AND INFANCY

The following special literature on the subjects listed below will be sent free to any citizen of the State on request to the State Board of Health, Raleigh, North Carolina.

Prenatal Care.	Baby's Daily Time Cards: Under 5 months;
Prenatal Letters (series of nine monthly letters).	5 to 6 months; 7, 8, and 9 months; 10, 11, and 12 months; 1 year to 19 months; 19 months to 2 years.
The Expectant Mother.	Diet List: 9 to 12 months; 12 to 15 months; 15 to 24 months; 2 to 3 years; 3 to 6 years.
Breast Feeding.	Instruction for North Carolina Midwives.
Infant Care. The Prevention of Infantile Diarrhea.	
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The North Carolina Academy of Public Health

By MRS. ANNE B. EDWARDS, *Sec-Treas.*

THE success of any new undertaking is measured not by the plans it adopts but how well it executes those plans. The North Carolina Academy of Public Health was fully aware of this when, on December 14, 1942, it held its first meeting in the auditorium of the State Laboratory of Hygiene.

First, it was decided that such an organization would be of potential value, as well as the need for the purpose of coordinating all of the interest of the various departments of the State Board of Health; and second, that this should be a democratic organization, made up of the entire personnel of the State Board of Health, with no "priority list." That is to say, the opinions of all were to be respected, and the majority to control. The State Health Officer emphasized this when he declared that he wanted every employee to feel free to express himself or herself on any subject that might arise, regardless of his opinion or that of any director.

With this background, the organization—the first of its kind in the United States—began functioning, smoothly from the very first. However, the fact that this was a pioneer organization added to its responsibility, in that it was necessary for it to chart its course from its beginning. This it has done. Without precedent, each program has borne the stamp of originality—each has proved successful, in that it brought out the lessons its builders had in mind.

The first program of the year was in charge of Dr. T. F. Vestal, Director of the Division of Industrial Hygiene. Doctor Vestal told about some of the activities conducted in his department, especially examinations made for men engaged in occupations involving dust hazards in "vital" industries in North Carolina.

Mrs. Louise P. East, staff consultant nurse of the Division, presented a clean-cut synopsis of some of the work done among women entering the industrial field. Mr. M. F. Trice, Engineer, also gave a very informative address on field work, particularly in the mining and other extensive work in the manufacturing areas of the State, and what the division is doing to remedy the dust hazards. The final feature of the program was a moving picture prepared by the U. S. Public Health Service which showed scenes depicting what is being done in the mines and factories of this State.

Visitors recognized were: Dr. W. A. McIntosh of New York, a representative of the Rockefeller Foundation; Dr. D. F. Milam of the same Foundation, now located at Chapel Hill and Director of the State Board of Health's nutrition program; Dr. W. P. Jacobs of the Rockefeller Foundation, who recently joined the staff of the North Carolina State Board of Health and is in charge of the school Health Coordination Service; Dr. John F. Kendrick of the Rockefeller Foundation, and now Director of the State Nutrition program. From the North Carolina School of Public

Health were Dr. Harold W. Brown, dean of the School of Public Health; Miss Ruth W. Hay, Professor of Public Health Nursing; Miss Margaret Blee, Assistant Professor of Maternity and Infant Hygiene; Dr. John J. Wright, Research Professor of Epidemiology, and Dr. Wm. L. Fleming, Research Professor of Syphilology.

The second meeting of the North Carolina Academy of Public Health was conducted by the Division of Oral Hygiene. Dr. Ernest A. Branch, the Director, told the Academy why oral hygiene was necessary in a health program and the relationship of the health of the mouth to systemic diseases. He also told about the activities of the trained dentists on his staff in the classrooms and their procedure of teaching and work. Too, he discussed dental caries, or tooth decay explaining the theory of same and how it is caused.

Doctor Branch paid tribute to Dr. G. M. Cooper for the oral hygiene program—stating that he was the first person in the United States to put dentistry in a public health program.

Miss Carolyn Mercer, Educational Consultant, discussed the assistance given classroom teachers to follow up the interest in mouth health created by the teaching of the school dentists.

A very amusing and enjoyable comedy skit was presented to the Academy on the evening of February 22nd by a group of employees. The skit was based on suggestions for improvement of any condition or situation existing at the Health Department received through a question box. The committee in charge of the program were: Miss Mary Batchelor, Chairman, Mrs. Ruth Y. Harrell, Narrator, Mrs. Mary B. Cross, Miss Sarah Goggans, Miss HenneEtta Owen, Miss Maggie Blackburn and Miss Fannie Nicholson.

Dr. H. L. Quickel, a new member of the staff of the Division of Industrial Hygiene was introduced to the Academy, as also were a number of visitors present from the Harnett County Health Department.

The meeting on the evening of March 15th was under the auspices of the Division of Laboratory of Hygiene. A moving picture

showing the farm and buildings of the Laboratory were shown, Dr. John H. Hamilton, Director, acting as narrator and explaining the various scenes. Then those present were invited to visit the various laboratories comprising the State Laboratory of Hygiene for a "peep show" to observe some of the numerous activities of the Division.

At this meeting it was deemed wise to appoint a committee to secure the names of all members of our "public health family" now serving with the armed forces, and that the committee send a NEWS LETTER to each one once a month in order that they could keep up with the activities of the health department during their absence. Dr. Robt. F. Young was elected Chairman of the Committee.

Governor J. Melville Broughton was guest speaker at the meeting of the Academy in April. He endorsed the purposes and aims of the organization, and said that better understanding among workers in public agencies always resulted in higher standards of work. Governor Broughton also said that we have here in North Carolina the finest State Health Department in the Union, and he was glad to see that we were meeting, discussing our problems, and learning of each other's duties with a view of maintaining that standard and rendering the public the kind of service that is built on human relations.

At the conclusion of Governor Broughton's address, Mr. Warren H. Booker, Director of the Division of Sanitary Engineering, directed a program in which topical discussions were given on Malaria Control, Milk Sanitation, the N. C. Bedding Program, Hotel and Cafe Sanitation, Shellfish Sanitation, Meat Market Sanitation, Abattoir Sanitation and Water Works and Sewerage. Also a film "Health and the Cycle of Water" was shown.

Another highlight program of the Academy was held when Dr. Carl V. Reynolds, Secretary and State Health Officer, was the speaker. Doctor Reynolds began with the Biblical reference of the span of life in the very earliest days of human history. He drew many valuable lessons in his address as it related to longevity;

need for better medical care and information; the problem of the mentally sick; school work; nutrition; oral hygiene and other work of public health in general. Doctor Reynolds also gave a synopsis of his annual report to the Conjoint Session of the State Medical Society, in which he enumerated, in part, some of the activities within the State Health Department, and accomplishments of the divisions. He paid tribute to our "happy and enthusiastic family" from the Board of Directors to the general personnel for "the enviable advancement made."

Dr. W. K. Sharp, Jr., Director of the United States Public Health Service, District No. 2, was introduced to the Academy, and in his remarks he paid tribute to Doctor Reynolds on his reappointment as State Health Officer, and commended him for his leadership and the fine work the organization is doing.

At the conclusion of the meeting Dr. and Mrs. Reynolds were host and hostess to the Academy. A social hour of music, dancing and refreshments was enjoyed by all.

The Employees' Group had charge of the meeting in June at which time a picnic was held on the grounds of Caswell Square. Outdoor games and dancing was participated in.

Meetings were dispensed with during the months of July and August.

Dr. J. C. Knox, Director of the Division of Epidemiology, had charge of the program for the Academy on the evening of September 20, 1943, which consisted of the showing of educational films on syphilis and malaria control.

Dr. John A. Ferrell of the Rockefeller Foundation was introduced. Doctor Ferrell is a North Carolinian and a friend of the Health Department. He did pioneer work with the State Board of Health on hookworm eradication, etc.

Mr. Capus Wynick, Director of the Venereal Disease Education Institute, presented the program in October. In his introductory remarks on the objectives and achievements of the Institute he said that the Institute was set up primarily to originate educational materials for use in the national program for control of the venereal diseases, and to evaluate both materials and technical investigations. While

located in North Carolina and demonstrating the materials and methods in this State, the Institute is expected to make its production and its conclusions available to other states. Other states now are using many of the materials originated here.

Mr. C. S. Buchanan, a member of the staff, filled the role of "Dr. V. D. I. Q." in a very unique and entertaining manner and conducted a quiz on the subject of venereal diseases.

The last program of the year was presented by Miss Ruth W. Hay, Professor of Public Health Nursing from the School of Public Health at Chapel Hill. Miss Hay spoke very interestingly and informatively on the Department of Public Health Nursing which was added to the School about two years ago. She reviewed the work and activities of the Department from the beginning, discussing the analysis of the total student group through the beginning of the third year; the curriculum and the effective field experience in preparation for public health nursing. Miss Hay said that the Department of Public Health Nursing at the University of North Carolina is being keenly observed by educators in long established schools and national organizations.

Visitors present were: Mrs. E. G. Shreve, Director of Public Health and Welfare of Atlantic City, New Jersey, and Dr. Howard M. Kline of the U. S. Census Bureau.

The following officers were elected for the coming year:

Dr. Ernest A. Branch, President

Mr. James W. Kellogg, Vice-President

Mrs. Anne B. Edwards, Secretary-Treasury

The foregoing summation of the Academy's activities during the first year of its existence serves as an index to its aspirations for a future of continued and expanding service. The programs were varied, ranging from technical discussions to social intermingling, from which the lesson might well be drawn that, to succeed, any human undertaking must be broad in its scope, as well as definite in its purposes.

The form of service the Academy is designed to render will find reflection outside the or-

ganization itself, for the members realize that they are servants of the people of North Carolina; that to be good servants they must strive toward self-development, in order that they may render more intelligent, as well as more efficient service to humanity as a whole.

They realize that, as artists engaged in helping to paint the public health picture, they must permit no blemishes to occur which might be chargeable to indifference, neglect or ignorance.

Rocky Mount Looks To The Future

By JAMES A. WESTBROOK
District Sanitary Engineer
Division of Sanitary Engineering
State Board of Health

MANY of us look back on our boyhood days when we made our daily visit to the ole swimmin' hole on hot summer days. We recall the old rope swinging from the highest oak along the creek, and how we would swing way out over the water, screaming and yelling, then let go and splash into the cool water. Then, one day, a dignified little man came and after much shouting he quieted us and said: "You boys can't swim here any more. This stream is polluted and is dangerous to your health." I didn't know what "polluted" meant, except that it had something to do with germs. When I went home I asked Poppa about it and he said he had planned to tell me not to go in that ole swimmin' hole again on account of it just won't fit to swim in. It seems that the town had recently put in a sewer line to the creek and ruined our nice swimmin' hole.

Yes, "swimmin' holes," bathing beaches, oyster growing areas along the coast, and surface water supplies have been actually affected and many times ruined because of waste disposal into the stream. New industries built along streams to use the water have in many instances created bad conditions by emptying wastes into the stream with no treatment to the wastes at all.

Let's take a look and see what is going on right in our own North Carolina. What are we doing about it? Can't we look a little into

the future and save some of the many "Ole Swimmin' Holes" we used to enjoy so much?

Down east, the City of Rocky Mount, a very progressive industrial and manufacturing center on the Tar River, was confronted with a problem. Being an up and coming community, growing steadily, it outgrew its facilities for the proper treatment of wastes and sewage. New industries were being established, some of them using tremendous quantities of water in their operations and finally turning the water into the sewer to eventually create a nuisance in the river. On downstream on this same Tar River, only 45 miles away by river, the Town of Tarboro uses the river as its source of water supply. The officials at Rocky Mount, confronted with the problem of properly disposing of domestic sewage and industrial wastes, began to wonder: "What are we going to do about it? We are 'muddying' the water in the Tar River by what we are putting into the river."

Well, they did something, and something which stands as a shining example to other towns and cities which may be faced with the same problem in the future. They secured the services of an engineering firm, J. E. Sirrine & Co., Greenville, South Carolina, which made plans for a modern sewage treatment plant—a type known as a chemical precipitation, separate sludge digestion plant—the idea being to empty treated sewage into the

river so that the sewage would have about the same appearance and same quality as the water already in the river.

It's not so simple to handle sewage from a city of 25,000 population having industrial wastes. However, plans for the plant were submitted and approved in March 1941. Work was completed the latter part of 1941.

Let's take a look into the results of the forethought given this problem by Rocky Mount. Located on the northern outskirts of the city on the Leggett's Highway is a series of buildings, tanks, and structures, fenced in to give the appearance of a well-operated business establishment of some kind. Contrary to practice of years gone by of having such a plant located way back in the woods out of sight, this plant is located on a large tract of open land and has a most inviting appearance.

Briefly, the plant consists of processes as follows:

1. Bar Screen, where large particles, bricks, and the like are stopped from entering the plant. This screen is cleaned mechanically by a mechanism which continuously rakes collected material from the bars of the screen. The collections are deposited into buckets and disposed of by means of a hammer mill which breaks up the solid matter. After going through the hammer mill, the pulverized matter is put back into the sewer to continue to the plant.

2. Grit Chambers (two in number), where sand and grit are removed by means of a Hydro-Grit Washer and sand elevator.

3. Grease Flotation Units (three in number), where grease from kitchens and laundries is removed. The principle of this operation is based on the fact that grease rises to the surface after the sewage is agitated and stirred up. The floating grease is readily removed from the surface.

4. Primary Settling Tanks (three in number), where settled solids are removed from the bottom of the tanks to reduce the clogging of filters in the trickling filter process. Solid matter is pumped from the tanks to the solids digestion tanks periodically. In the primary

tank from 50 to 85 percent of the settleable solids are removed.

5. Trickling Filters (four in number). The purpose of trickling filters is to introduce oxygen into the sewage, thereby keeping the sewage fresh and preventing a septic condition. The sewage flows on the rock filters through rotary distributors which rotate in a manner similar to the ordinary garden variety of water sprinkler. The sewage trickles through the rocks in the filter to underdrains. The sewage then flows to a secondary settling tank.

6. Secondary Settling Tanks. The purpose of this part of the process is to remove any settling solids not removed in the primary tank, so that solid matter or sludge will not be deposited in the river into which the sewage is eventually emptied.

7. Digestion Tanks (two in number). Solids collected in the settling tanks are pumped to digestion tanks, the purpose being to render the solids inoffensive. The process changes the quality of the sludge, the final products being gases, liquids, mineral compounds, and non-digestible organic matter.

8. Pumping. The processes briefly mentioned do not take place in a one-two-three operation without machinery. Pumps of various kinds, sizes, and shapes are located throughout the plant.

9. Chemical Feed. The plant is equipped with chemical feed machines which may be used if necessary in the treating of the sewage. This may become necessary if trade wastes become more concentrated than they now are.

In a brief manner I have attempted to show you the magnitude of the modern sewage treatment plant at Rocky Mount. Now, just for curiosity, what does all this pumping, settling, filtering and digestion mean to the City of Rocky Mount and to that old Tar River?

First, the final solid material from the digestion tank is removed to drying beds where, just as you expect, drying takes place. The dried sludge has a rich tarry odor, is light grey in color, and makes a pretty good fertilizer. No, I don't mean something as good as you could buy from your local fertilizer



TRICKLING FILTER, GAS HOLDER AND DIGESTORS

dealer, because this dried solid material is not a balanced product. It is used, however, around the plant on the grass, and it really makes the grass take a new lease on life.

Second, the most important result is that of taking care of Old Man River. Let's take the yardstick which the people gauging quality of sewage and river pollution use and see what the results are. The chief test is the B.O.D. test, which is a measure of the oxygen characteristics of the liquid. Tests run in the laboratory almost every day on sewage coming into the plant and sewage leaving the plant show an average of 95 percent B.O.D. removal through the plant. How does that compare with the river? Tests of river water and the final sewage emptied into the river below, run an almost equal race as to which is which. In looks, the sewage appears to be as good or better than the river water. So, we find that the plant superintendent is getting results he knows to be good according to his tests. The appearance of the sewage, in which we are more interested, is all right, too.

It seems as though there was one more feature of the sewage treatment facilities I forgot to tell you about. Let's see. I remember now. I don't see how I could have let that slip by, because that one thing is the reason I

have written all the rest of this paper. If you remember, I mentioned gas as being a product of digestion of the solids. This gas is collected in a gas holder and is piped to the city gas plant. Here the gas is washed and mixed with commercial coal tar gas. Believe it or not, but about 10 percent of the gas used in the homes in Rocky Mount for cooking, heating water, and other purposes is gas produced at the sewage plant in the digesters. This gas has a much higher heat value than that of commercial gas. Consequently, this by-product of the sewage plant helps pay a part of the expense of the plant.

I believe I am correct in saying this (stop me if I'm wrong): the sewage plant at Rocky Mount is the first and possibly the only plant in this country to sell gas to the public on a large-scale commercial basis.

Rocky Mount is proud of its plant, and they should be, for it is doing a grand job of keeping clean a portion of the Tar River which was a real source of trouble in the past. The days of the ole swimmin' hole are gone for many of us, but we pride ourselves in the thought that many of our towns and cities are looking ahead to better stream conditions. What is your town doing about it?

A Letter

WE are indebted to Mrs. M. C. Patterson, 903 Shepperd Street, Durham, North Carolina, for a copy of a letter written by a physician practicing in Smithfield in the early part of the last century. According to Mrs. Patterson this letter was written with ink on a double sheet of paper and folded to form an envelope. In her letter of transmittal to Dr. Reynolds Mrs. Patterson states:

"I have tried to copy the old letter as accurately as possible, spelling, punctuation, etc., but could not even attempt the forming of the O's. Am very glad to send this copy. Think you will find it amusing too in part."

Smithfield

May 22, 1826

Mann Patterson

Orange County, Chapel Hill

Dear Uncle:

In for a penny in for a pound is an old saying and now that I am in the habit of writing to you I cannot abandon it though you write me not in return—Today is the first time in two weeks that I have been able to write, having been taken tomorrow two weeks ago with a pain in the substance of my lungs, connected with the pectoral complaint you know I have been from infancy afflicted with. I had myself bled six times in three days, two Blister Plasters on my Breast and legs, beside other medical treatment that my case required, has reduced me extremely but has been successful—it was brought on by great fatigue the pressure of my business this spring has been greater than I ever before experienced and my anxiety to attend to it has induced me to undertake more than my strength was competent to,, the day I was taken I rode forty miles into Wayne County to Tap a man who has the Dropsy—the whole business of the county has been on my shoulders for the last six months, Dr. Henderson having in effect quit us, tho he is still here. It has been not uncommon for me to drive Fifty miles in the day and night and not get out of the county

visiting my sick this spring,, indeed I never have witnessed so sickly a spring in my life any where as it has been here, the measles and Influenza and the numerous train of diseases arising from them has kept almost the whole county prostrate,, but fortunately for the people and for me it was subsiding very fast at the time I was taken down,, have not lost much by being down it is believed—

I had a great wish that some medical gentleman would come in to my help, and I am glad to be told that there has come one, who intends to settle in town, I have not seen him, as this is the first day I have been able to set up,, I had no medical aid to myself, my student was constantly at my bedside, I told him what to do if I should lose my senses, but thanks to a Kind Providence they were continued as good as when in health—I found the same treatment to answer in my case that had sustained me in other cases, and though it cannot but detract from me I must say to you that I could think of no physician neither in Raleigh or elsewhere convenient to this place who I could place confidence in,, it is known to you perhaps that there is a fashion in medicine as well as other things, which I hold to be destructive of its fundamental principals. I do not mean to let these fashionable gentlemen practice on me, if my course was not successful, and evidently gaining ground, and has already gained me more reputation than any one Physician ever had here before,, I should think I was speaking vainly,,—I had other medical men to see Chesley when he was sick and I conscientiously believe that he owes his life to my having pursued my own course to the entire exclusion of the opinion of others—

I want you if you know who has the old Family Bible in which all the births of my Family are registered, to procure for me a transcript from it and send it down, Sister (Sarah) wrote me the other day to know her

age, which I was ignorant of, I am also ignorant of Chesley Manns,

I know not that I ever shall see you again though it would be a great pleasure, had I leisure to come up, I am concerned about my brother Wesley, I am afraid he is mispending his time, if he comes in your reach, do give him a lesson, I disapprove of his attempting

to Teach,, mention me in kind feelings to your family, You will ever have my warmest affections

Jno. T. P. Yeargain

P. S. I am weak and not much in order for writing neither in body nor in mind as you see.

J.T.P.Y.

The Medical Follow-up of Hearing Impairments*

By HORACE NEWHART, M. D.

Emeritus Professor of Otolaryngology, University of Minnesota

TODAY the school is recognized as the most important unit in the conservation of hearing. The adequate medical follow-up of all pupils who have an existing or potential handicapping hearing deficiency is a serious problem in Preventive Medicine. In view of its educational, economic and social implications, this problem is a challenge to the physician, educator and the legislator. Too few, unfortunately, are aware that it exists. It deals with our largest group of physically handicapped school children. Its importance has been appreciated only during recent years as the result of increasing knowledge of the incidence, causes and possibilities of preventing and treating ear diseases.

The successful medical follow-up is based primarily upon the findings yielded by mass screening tests of the hearing acuity of all members of the school population by modern, approved methods. The objective is to disclose those pupils who have hearing deficiencies which demand a thorough otological examination, to be followed, when indicated, by treatment by a physician skilled in the care of ear diseases. The tests should not be limited to selected groups of obviously or suspected hearing defective pupils, lest many be overlooked.

While gratifying progress has been made in the incorporation of periodic hearing tests in the state school health programs of several commonwealths and independently in many

communities, the implied medical follow-up has not been executed with equal effectiveness. The reasons for this disappointing failure to carry out the most important part of the school hearing program is a lack of knowledge of certain fundamental facts related to the problem which should be made known to every physician, school official, school and public health nurse, member of parent-teacher groups and social welfare worker.

Among these facts we mention the following:

1. The best results are achieved in the conservation of hearing by the earliest possible discovery of existing or impending hearing impairments, and the prompt application of corrective measures. Delay invites irreparable damage.

2. A child may have a significant hearing deficiency so slight as to be overlooked by the parent and teacher, but which frequently causes retardation, speech defects, behavior problems and emotional maladjustments.

3. It is now recognized by otologists that neglected attacks of acute otitis media are the most frequent cause of hearing impairment among young children. The later effects may become manifest in progressively handicapping hearing loss in adult life. Parents of young children should be especially warned of

*Reprinted from *Journal of School Health* of the American School Health Association.

this danger. Traditionally, earaches, with or without discharge, are still regarded by the uninformed as mere trifles not worthy of medical care.

4. Contrary to our earlier accepted teaching, it has recently been discovered that diminished hearing acuity for tones of higher pitch, disclosed only by the pure tone audiometer, are frequently found in younger school children, and are an indication of impairment of the function of the eustachian tube and middle ear. Such losses have important clinical significance, and call for expert investigation and treatment. It should be noted in this connection that obstructing adenoids when removed surgically before puberty occur in more than fifty per cent of cases.

5. The classic methods for detecting hearing defects as ordinarily applied in school work are too crude and time-consuming to meet the requirements of modern otologic practice.

6. Accurate, dependable hearing tests cannot be made in the presence of interfering noises which mask the test tones.

These fundamental facts must be widely broadcast among all classes, from the general physician and school administrator, to the pupil who is old enough to receive through the school health education program practical instruction in the preservation of his hearing. This can be accomplished by a planned educational program under the leadership of interested otologists and educators. The result will be a public ear consciousness and an insistent demand for a thorough otological follow-up of all hearing defective pupils, which should be repeated at intervals during school life.

The medical follow-up of those pupils found by screening tests to have significant hearing deficiencies, preferably confirmed by a pure tone audiometer test, is most effectively carried out in schools in which there is in operation a well organized and supervised state hearing conservation program, administered jointly by the State Board of Health and the State Board of Education. These agencies must work in the closest cooperation, with the approval and backing of the State Medical Society.

The first step in the medical follow-up is the referral of the hearing deficient pupil by the principal or other school official to the school otologist or to a designated qualified physician for a preliminary otological examination. It is desirable that the parent be present, to whom the procedure and findings are explained. It should be noted that referral often should be made on other grounds, if the screening tests do not disclose a significant loss. Such referral may be based on a suggestive personal or family ear history, poor scholastic achievement, speech defects, behavior problems, absence after infectious diseases, and other conditions which suggest possible hearing impairment requiring otological scrutiny.

Attention should be called to the fact that many only partially controllable variables are encountered in making audiometric tests, especially when large numbers are simultaneously screened. These are due to haste in applying the tests, the immaturity of the subject, wide variations in the hearing acuity of the same subject between tests performed at different times, variations in the calibration and output of the instruments used, the training and experience of the operator, and his or her lack of familiarity with the care and application of the audiometer, and the previous experience of the subject. The great variations in the prevailing noise level in the places in which the tests are made cause inaccuracy. These conditions must be considered in evaluating audiometric tests. It is recommended that only audiometers accepted by the Council on Physical Therapy of the American Medical Association be used, and that only nurses or technicians properly trained in this field be entrusted with the work.

Following the routine otological examination by the school physician or his representative, the findings are reported to the parents with the recommendation that the child either be given early corrective medical care by a competent ear specialist or his case be deferred for further observation. In the former instance, the parents are advised to consult the family physician to whom the school findings are reported. He will refer the child for diagnosis

and needed treatment to the otologist of his choice. The latter will report his findings and results of treatment to the school authorities for the pupil's school health record. This program, with modifications, can be put in effective operation in any community, rural as well as urban, through the cooperation of all local agencies interested in the health and educational advancement of school children, our citizens of tomorrow.

The advantages of a traveling school hearing clinic to meet conditions in sparsely settled areas has been demonstrated to be practical.

Some conservatives have suggested that it would be wise and patriotic to postpone for the duration any vigorous campaign to promote increased activity for conserving the hearing. The answer is that in the great emergency,

"America's strength is health." The recent report of Col. Leonard G. Roundtree covering Selective Service Medical and Army examinations up to May 31, 1941, show that of 2,000,000 men examined, 1,000,000 were found defective. Of these 40,000 had disqualifying ear conditions. Defective hearing is impaired health. Normal hearing is a valuable national asset. Defective hearing among the civilian population in war production and especially those in combat units, is a serious liability, often a calamity. We should, therefore, put forth greater effort to safeguard the hearing, not in spite of the war, but as a recognized part of the expanding War Health Program, thereby taking advantage of the growing interest in health promotion on a nation-wide scale.

How Is Your Cold?

BEN Stebbins, assistant accountant in a large office, had a cold. His first sneeze spattered droplets all over the requisition he was signing, but it dried quickly, and he routed it on to his secretary. All that day he was busy wiping his nose. The handkerchief, with its pollution, he stowed meticulously in his pocket. He thumbed papers with moistened fingers, he sprayed any number of people with his breath, he shook hands with visitors and didn't even wash them (the hands) when he went to lunch. On the third day of his cold, Ben had the sympathy of his boss, Mr. Smith, for he, too, had caught a cold. And strangely, a number of people in the office were sniffing and two were home on sick leave.

Gloom pervaded the Smith household. Baby Sue was sick. Some "bug" from somewhere had somehow gotten into the baby's tender lungs, and now she was waging a grim battle with bronchopneumonia. The doctor was tactful and didn't even hint that poor Mr. Smith was probably the donor of the germ.

Gertrude McBride, Ben's sweetheart, a waitress at a restaurant, was sent home when she

came to work with a cold. A high-class outfit—they protect their customers and no one handles food who has a cold. Joe Siegel almost lost his job. He was a junior clerk and took Ben's work when Ben finally had to stay home with a bad sinus. Joe, being new, made a clerical blunder that cost the concern \$50.

The manager was unhappy about the absentee rate last month, sick leaves reached a peak. "Dammit" was about all he could say, for you can't blame anybody for these foolish cold epidemics—and it took a 15-cent cigar to calm him down.

This disconnected story (a bit exaggerated but possible) hangs together if you know the key. Most colds are caused by a filterable virus, which means germs so small they pass through the finest filter. And how these germs travel! On microscopic drops of spray, from mouth to articles to the next mouth. If germs left a red stain wherever they traveled, what a gaudy tangle of red tape one would see in a place where colds have broken loose!—H. E. Kleinschmidt, M.D.—NTA Clip Sheet.

Universal Service

By WILLIAM H. RICHARDSON
North Carolina State Board of Health
Raleigh, North Carolina

WE hear much these days about total mobilization, universal service and other subjects associated with our military progress, designed to hasten victory on the field of battle, in the air, on the sea and under the sea. We are fighting an all-out war, and nothing short of all of our best will suffice, if we are to survive. We must conserve and utilize every material resource—we must avoid waste—if we are to achieve our objectives, at a minimum of loss to ourselves.

We all know that there is much talk in connection with any great undertaking—some helpful, some downright harmful. Oratory is not going to win this war; neither will zeal, unless it is properly channeled.

What will it profit a man if he gain the whole world and lose his own soul, or what will a man give in exchange for his soul? Without any attempt to preach a sermon, the observation can be made that soul, in this instance, means that which cannot be weighed or measured. It embraces the verities of life, as distinguished from the purely material things. Hence, it is not amiss to ask this question. What is a man profited if he gain the whole world and lose his own health, or what—if he considers the matter well—will a man give in exchange for health?

An unhealthy man is not accepted for combat duty. He must sit on the sidelines.

Nor can it be said that all the unhealthy are in that condition through no fault of their own. Thousands are unhealthy because of their faults. Consider, as an example, that vast army of syphilitics, for whose protection the men at the front are fighting. Are these men unhealthy through no fault of their own? Are they straight-shooters when they make no attempt to remedy the condition that has placed them on the inactive list? It can hardly be said that they are, for public health offers them a cure, without cost.

No person who has become unhealthy because he has failed to avail himself of the benefits that science has provided for his restoration can be classed as blameless.

Mass protection is the business of public health, and in providing this, it has done its job well. In our own State of North Carolina, within the past few years, public health has expanded to the point where, out of a total population of 3,571,623, only 200,698, or 5 per cent, live in counties that have not competent, well-organized public health departments.

During the fiscal year of 1934-1935 we had 52 counties participating in organized public health programs. Social Security funds became available in February, 1936, and since then



Melvin Martin Miles, son of Mr. and Mrs. W. M. Miles, Cherrylane, N. C. At 6 months he had been immunized against whooping cough and diphtheria. His parents read the Health Bulletin.



James Caldwell Fisher, five and one-half months. Son of Mr. and Mrs. James K. Fisher, Rockingham, N. C. Mr. Fisher is a member of the staff of the Richmond County Health Department.

there has been rapid growth. By the fiscal year 1940-1941 we had 81 counties and 5 cities participating in these federal funds. The number of people being served had grown from 1,822,961 to 3,132,192. Today we have 89 counties with organized health departments, serving 3,370,945, or 95 per cent, of the entire population.

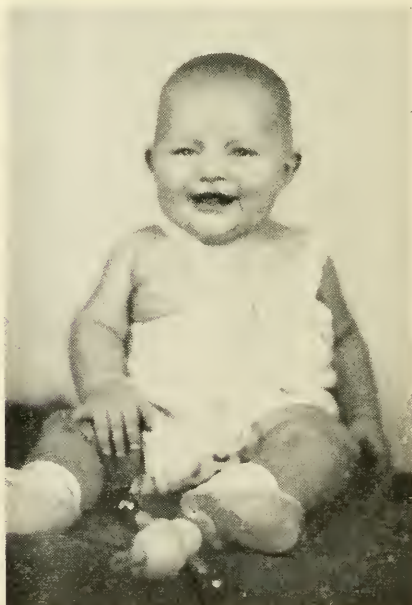
We hear much these days about minority groups. Public Health places these on a parity with majority groups, as the public health program considers neither race nor numerical status, but humanity as a whole.

The largest so-called minority group in North Carolina is our negro population, which numbers 981,298. Of this group, all but 49,259 enjoy the full benefits of organized public

health, and the only reason these do not is because the counties in which they live happen to be the eleven counties without public health departments. In these counties live 151,938 members of the white race without full public health protection.

Of the 22,546 members of another minority group, namely Indians, every one of these lives in a county with a public health department. North Carolina has the largest Indian population of any state east of the Mississippi River, and about the fifth largest of any state in the entire Union.

It has long been realized in military circles that the first principle of defense is attack. To a military-minded civilian population there is perhaps no better way of describing the advantages of a local health department than by saying that, in making health service available within a community, the citizens of that community have provided themselves with leaders



Jaye Carol Lee, daughter of Mr. and Mrs. Elton Lee, Pikeville, N. C. At 5 months of age Carol weighed 25 pounds. Prenatal and Infant Care bulletins supplied by the State Board of Health were helpful in giving this young lady a good start in life.

to plan and execute the attack upon diseases and conditions dangerous to the public health. They have provided themselves with protection against an aggressive enemy. Those communities in which there is no full-time health service have no such protection. No attack is possible to them. They are without leadership for establishing attack.

Since there are many manifestations of dangers to the public health, there must, consequently, be many phases of attack, and each type of personnel within the health department—doctor, nurse, dentist, sanitary officer, and clerk—has its particular part of the campaign to plot and advance. Each carries its individual responsibility; each individual responsibility is a part of the whole. While each is responsible for executing a certain phase of the attack, all are united in the concerted drive.

The county which has a whole time health department has an organization which stands between its citizens and the ravages of communicable disease—which attacks such diseases by means of immunization, epidemiological investigation, isolation, quarantine, diagnostic service (consultation and laboratory examination) by sanitation, and by the education of the public to the dangers of such diseases and the methods by which they are spread. In diseases such as tuberculosis, diagnostic service is of vital importance since early diagnosis is the first step toward cure and likewise the first step toward preventing its spread. In the case of communicable diseases such as syphilis, the health department goes even further in its attack, establishing clinics for the treatment of syphilis as a means of preventing its spread.

It has an organization which concerns itself

with the welfare of the expectant mothers and the babies within its jurisdiction, offering medical and nursing service in the clinic and in the home. It exercises supervision over the practicing midwives of the community, instructing them in proper care of normal cases and pointing to them the danger signals of conditions which they are incompetent to handle.

It undertakes the examination of preschool children in an effort to find and correct all remediable defects prior to the child's entering school. It plans a careful program of work within the schools which includes the examinations of school children—both medical and dental examinations — and health education activities.

It provides for the sanitary supervision of cafes, hotels, and other food-handling establishments; for the sanitary disposal of human wastes, as a safeguard against the spread of filth borne diseases; for the sanitation of milk supplies, and for many other special services. It provides for the physical examination of food-handlers as a further means of safeguarding the public health.

And through the whole fabric of the public health program runs the policy of backing up all the safeguards, all the services, with a well formulated plan for the education of the public as to the necessity for such services. It is necessary not only that the community have such service, but that they be given a clear understanding of its meaning to the individual and its value to the community as a whole. Through health education, an effort is made to enlist every citizen in the campaign for the public health.

Notes & Comment

By THE ACTING EDITOR

ACADEMY IT may not be fair to evaluate the accomplishments of a child just one year old, yet to those who have watched it from its advent there can be but little doubt that the North Carolina Academy of Public Health has already made substantial contributions to the States' health program. For one thing, the health workers know each other better than they did one year ago. Then too, they are more familiar with the activities of the various divisions and with the part the divisions are trying to play in promoting the health of our people. By having this knowledge the individual worker has a greater appreciation of his co-workers and can be more helpful in passing beneficial information to the people of the State. Many of the nation's outstanding leaders in public health have been introduced to members of the Academy. These are intangible benefits, but they increase in value through the years. There have been some definitely tangible accomplishments of immediate value. Notable illustrations of the latter are some administrative changes rather apparent to the casual visitor and readily recognizable to the workers themselves. Only time can determine the real value of the Academy.

The first year has been one of experimentation. Divisions have vied with each other to present programs of originality. Future experience may tend toward programs conforming to a definite pattern of a conservative or conventional type. Perhaps variety will be the type of program in the future. It will be the responsibility of the members to bring up the young organization in the ways in which it should go. If it serves the needs of its members, it will continue to justify its existence and have a permanent place in the minds and hearts of the people who are trying to serve the cause of public health.

To Dr. G. M. Cooper, the first president of the North Carolina Academy of Public Health, and Mrs. Annie B. Edwards, Secretary-Treas-

urer, we express our heartfelt gratitude for the intelligence and effort which they have contributed. To Dr. Ernest A. Branch, the new President, we extend our best wishes.

* * *

PROGRESS In this issue of the Bulletin Mr. Westbrook has given us a glimpse of the modern sewage treatment plant at Rocky Mount. In the January issue he told us of the new water purification plant at Wilmington. In these war time days most of our communities cannot carry out construction programs, however, they can plan for the future. The progress which has been made in Rocky Mount and Wilmington should stimulate progressive minded municipalities throughout the State.

The water purification plant at Wilmington is noteworthy for several reasons. It represents 62 years of development and 62 years of effort by the John Sweeneys, father and son. Sixty-two years ago water distribution plants were a novelty in North Carolina. There is a vast difference in the standards of public water supplies then and now. The Wilmington plant has had many difficulties to overcome. Their new plant should give them water of a uniformly high quality.

The sewage plant at Rocky Mount should point the way to a great many North Carolina communities. We have been very careless about polluting our streams. Rocky Mount is demonstrating that sewage treatment can be accomplished effectively and economically.

Both at Wilmington and at Rocky Mount we have demonstrations that our municipally operated utilities need not be ugly. It costs no more to have architectural lines that are pleasing to the eye than it does to have those atrocities which we formerly constructed and tried to justify only upon the grounds that they were useful. Let us hope that we have embarked upon a program of constructing useful buildings on attractive lines.



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A NORTH CAROLINA SLAUGHTER HOUSE IN 1936
IT WAS CLOSED SHORTLY AFTER THIS PICTURE WAS MADE

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FREE HEALTH LITERATURE

The State Board of Health publishes monthly THE HEALTH BULLETIN, which will be sent free to any citizen requesting it. The Board also has available for distribution without charge special literature on the following subjects. Ask for any in which you may be interested:

Adenoids and Tonsils	German Measles	Sanitary Privies
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SPECIAL LITERATURE ON MATERNITY AND INFANCY .

The following special literature on the subjects listed below will be sent free to any citizen of the State on request to the State Board of Health, Raleigh, North Carolina.

Prenatal Care.	Baby's Daily Time Cards: Under 5 months;
Prenatal Letters (series of nine monthly letters).	5 to 6 months; 7, 8, and 9 months; 10, 11, and 12 months; 1 year to 19 months; 19 months to 2 years.
The Expectant Mother.	Diet List: 9 to 12 months: 12 to 15 months, 15 to 24 months; 2 to 3 years; 3 to 6 years.
Breast Feeding.	Instruction for North Carolina Midwives.
Infant Care. The Prevention of Infantile Diarrhea.	
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Winston-Salem 1943

By R. L. CARLTON, M.D.

City Health Officer

Winston-Salem, North Carolina

CIVILIAN health is important—more important just now than usual—so some figures about births and deaths and those diseases which threaten the population from day to day become of importance, too.

Births. A larger number of babies were born in Winston-Salem in 1943 than in any previous year in the city's history. Certificates were filed for 1,878 white and 798 colored babies, a total of 2,676, an increase of 79 over the 1942 record which year had the largest number of births up to that time. These figures indicate a birth rate of 32.6 per 1,000 population—an increase of .2 over the birth rate of 1942 and an increase of 5.6 over that of 1941.

1,035 babies were born here of non-resident parents during the year just closed. The records show that 2,290 or 85% of all the babies born here last year occurred in hospitals.

Stillbirths. 87 babies were born dead—51 white and 36 colored—an increase of 17 over the year before. This means that 1 in every 31 babies was born dead last year, while in 1942, 1 in 37 was a stillbirth. The stillbirth record is proceeding in the wrong direction—not alarmingly so—but nevertheless our record in this respect was not as favorable in 1943 as in the two-year period immediately preceding.

Deaths. 977 persons—576 white, 400 colored and 1 Indian died in Winston-Salem last year. This is an increase of 193 over the year before. The increase is practically all in the white race—there being 191 more white deaths

than in the year before and an increase of only 1 colored and 1 Indian. These figures indicate a general death rate of 11.9 which is 2.3 above the rate of 1942 and corresponds quite closely to the general death rates for several years just prior to 1942.

Death rates by color are of interest—the white death rate for the year being 12.8 (and that's up 4.3 from the year before) while the colored death rate was 11.1 (down 1.6 from the 1942 rate).

Non-resident Deaths. 291 non-residents died here last year. This is an increase of 130 non-resident deaths over the year before. Deducting the non-resident deaths from the total there is left a true or resident death list of 686, making a resident death rate of 8.4 per 1,000. A creditable rate indeed, but representing an increase of .6 over the record low rate of the year before.

Deaths by Age Groups. To know at what ages most of the deaths occur is of interest as well as of considerable importance. Important from a public health standpoint, certainly, because vastly different programs of health protection and disease prevention are required for the different age groups of the population.

Our statistics show that for several years the largest number of deaths have occurred in the groups of greatest age. Last year there were 338, the largest number for any age group in the 60 years and older class, while next in numerical importance was the 40 to

59 year old class with 284. We lost 51 in the 15 to 24 year old group, and 136 in the 25 to 39 year old class—making nearly 200 deaths of persons in young and what should have been active manhood and womanhood—cut off just where they should have been most productive.

Then there are the babies who did not live long enough to celebrate their first birthday anniversary—127 of them last year—24 more than in 1942. An item that ought to be of interest is this—our infant mortality rate in 1940 was 80 per 1,000 live births and in 1941 it came down to 60 and in 1942 it dropped still lower and reached 40 per 1,000 live births—the lowest rate the city has had. Then last year the baby death rate turned the wrong way and went up to 47 per 1,000 live births, an increase of 7. It would have been so much nicer if the rate could have kept on coming down. This rate, 47, is by no means one to make health workers and mothers lose courage and give up. The infant death rate in past years has been far greater than the present rate. The health officer remembers when the mortality rate here was 200 per 1,000 births. Think of all the hosts of little folks living now who would be dead if death rates such as that existed at present.

The infant death rate for the two races should be of interest. While our white died last year at the rate of 41 per 1,000 born, an increase of 10 over the year before, the colored babies passed out at the rate of 61 per 1,000 born which is a decrease of 30 from the rate of 1942—and that calls for congratulations to colored babies and their mothers.

These figures all indicate there is still much to be done in the way of care and protection of our little ones. Both white and colored death rates are too high—the white rate proceeding in the wrong direction and the colored rate showing some improvement.

Causes of Deaths. Heart diseases last year as for many years lately killed more than any other cause—in fact several others combined—214 persons lost their lives because of various heart conditions, an increase of 73 over the

year before. One death in every $4\frac{1}{2}$ last year was a heart case. Cerebral hemorrhages was next to the top with 125 victims, an increase of 20. Cancer was in third place among the chief causes—87 deaths being charged to cancer, an increase of 12. 57 of the cancer victims were white and 30 colored. It is hoped that we may soon see the tide turn with respect to cancer deaths.

Pneumonias were 4th in the list of important causes killing 79 persons, an increase of 17. Deaths from pneumonias seemed to be on the decline in 1942 when the record showed 10 fewer than in 1941, but unfortunately in 1943 the pneumonia death rate went up to the tune of 17 more than in 1942.

Conditions of prematurity and congenital malformations had 61 deaths charged to these conditions, which is an increase of 12 over the previous year.

Tuberculosis which in 1942 dropped to 8th place went up to 6th position in 1943 with 54 deaths as compared to 30 the year before. These figures indicate a tuberculosis death rate of 65 per 100,000 population. A sharp rise from the rate of 48 in 1942. The present rate, however, reveals a favorable situation as compared with 1941 of 85. By color the record shows that last year the white tuberculosis death rate was 35 per 100,000 and the colored rate 103. Both white and colored rates are increases over the 1942 rate—the white rate 26 points higher and the colored rate 6 points higher than the year before.

Violence, or external causes, were charged with 52 deaths a decrease of 1. In this group are included 11 deaths due to accidental falls, an increase of 4; 5 suicides, an increase of 3; 4 homicides, a decrease of 5; 7 accidental burns, 3 less than the year before; automobile accidents were charged with 17 deaths, a decrease of 1 from the 1942 record; 3 deaths due to railway accidents, none in 1942. So, we lost 52 persons because of violence last year—and that's too many.

Nephritis occupied 8th place in the principal causes of death, with 45 victims, a decrease of 16.

Complications of Pregnancy and Labor caused 22 deaths, and that's 10 more than in 1942. Of this total number 14 were babies and 8 mothers which means that there was a maternal death rate last year of 3 per 1,000 births as compared to 2.3 the year before.

Diabetes was 10th in the list of principal causes with 18 deaths—and that's exactly double the number of diabetes deaths for the year before.

Communicable Diseases. The city had a good record—there were no epidemics. Whooping cough was reported in 787 persons, most of these being reported the first half of the year, and 2 children died because of this disease.

Scarlet fever was reported in 74 cases, an increase of 15. There was no scarlet fever death.

Diphtheria attacked 27 children and 3 died. An increase over the year before when there was only 16 cases and no death. We ought to be ashamed of our diphtheria record—some of us are. There is no excuse for a city to have 27 cases of diphtheria in any year. The disease is one that is well understood. There is definite knowledge of what causes it, of how it may be cured and of how it may be prevented. The preventive treatment is available to any child regardless of circumstances. Furthermore, there is a law which makes the failure to protect children against diphtheria a misdemeanor on the part of the parents—and yet in spite of all this we have 27 children attacked and 3 of them lost to this killer.

Measles was reported in 275 cases and no death.

Typhoid fever occurred in only 5 persons—no death. In 1942 there were exactly 5 cases and 1 died.

Endemic Typhus Fever occurred in 6 persons. We may expect to continue to have

typhus cases with us until the city rids itself of rats and fleas.

Another item which should interest many Winston-Salem citizens is this—we lost 14 children because of ileo-colitis or summer complaint—and that number is 8 more than for the year 1942.

Tuberculosis was reported in 135 new cases—19 more than for the year before. And this number does not represent all the cases of tuberculosis in our city because they were simply not found. For 54 tuberculosis deaths there should have been discovered 400 cases of the disease. There is still much work to be done before tuberculosis is eliminated. The local tuberculosis program is a good one; the disease is being slowly conquered—let's increase the tempo of the fight against it.

Veneral diseases were reported and treated in wholesale numbers throughout the year—nearly 2,400 new cases being admitted to the clinic and more than 28,000 treatments administered.

These figures pertain to the city's health for the year just closed. Some of the balances are in the red, many of them are certainly on the right side of the ledger. In spite of wars and confusion and upset conditions and changed programs and family disruptions and crowded hospitals with short medical personnel, the city generally has come through the year in good condition so far as it's health is concerned.

This is the 27th year the present health officer has had something to do with the summing up of the city's annual health record. There have been many years in which the general health record was not so good as in 1943 and there has been one or two years when the record was a little better. And that's what happened in Winston-Salem in 1943.

The Division Of Epidemiology

By C. P. STEVICK, M.D.

Acting Director, Division of Epidemiology
North Carolina State Board of Health
Raleigh, North Carolina

REGARDLESS of the particular specialized capacity in which a public health worker may be serving, such as health educator, nurse, medical officer, sanitary officer, engineer, or technician, he must know the fundamentals of all of the different public health services in order to perform his job with the maximum efficiency. In the same way, although the various divisions of the State Board of Health are engaged in specialized work, each must know and carry out certain fundamental public health duties common to all. This situation is particularly true in regard to epidemiology. While one of the divisions of the State Board of Health is devoted primarily to epidemiological work, all of the other divisions are also engaged frequently in epidemiological study. In fact, this type of study forms the foundation for most of our present day activities in the field of public health.

Epidemiologists have frequently been described by the term "Disease Detectives." However, while the work of the police department detective is done when his case is solved, the most important work of the epidemiologist is done after the cause of the particular outbreak or epidemic of disease is determined; that is, he must use the facts discovered to set up a control program to prevent, in so far as possible, recurrence of the outbreak. At times he must even administer the control program himself.

Since all public health procedures are used only where they will be the most good, the "Disease Detective" applies his efforts only where the results justify them. The most fertile field for present day epidemiological service has resolved itself to be that of the communicable diseases.

The Division of Epidemiology of the North Carolina State Board of Health is under the

direction of the state epidemiologist. The Division receives information from many sources in order to be immediately aware of outbreaks of certain preventable communicable diseases. It has available to it medical, laboratory, and other technical assistance in order to carry out investigations and prepare control programs found necessary. During the past few years the venereal disease problem has received increasing attention by the Division of Epidemiology, along with many other divisions of the State Board of Health, and there has come about such a flood of data through the channels of information, and so much has been required of certain other technical services that the work dealing with other epidemiological problems has appeared overshadowed at times. However, the various services of the Division have continued to produce valuable results in all the other established programs. A summary of each of these services with a brief explanation as to the part each plays in solving disease control problems will illustrate the operation of the Division as a unit.

REPORTING AND TABULATING SERVICE:

This service constitutes the Division's channel of information. The incidence of communicable diseases in the various parts of the world is reported at weekly intervals to the director's office by the bulletins and reports of the U. S. Public Health Service. The communicable disease picture in the other states of this country is presented also by reports from the U. S. Public Health Service at weekly intervals, and by direct reports from many of the states themselves. The prevalence of disease in our own state is reported daily to the director's office.

The staff that receives these reports from the various areas and records and tabulates them is known as the Central Tabulating Unit. It compiles the daily reports and publishes weekly and monthly summaries of all the reportable diseases in North Carolina. Valuable communicable disease information is also received from various laboratories in the state. Information from all these sources shows when new epidemiological work is needed and evaluates the results of the current activities.

LABORATORY SERVICE:

The Division of Epidemiology employs two full time Laboratory Technicians and in addition has the complete cooperation of the State Laboratory of Hygiene. The laboratory study of disease outbreaks is an important part of the investigation necessary on such occasions. When the causative agent is determined the control measures necessary can be outlined.

ENTOMOLOGICAL SERVICE:

The Division employs a full time Entomologist and is constantly studying the prevalence and location of certain disease-carrying insects. At present mosquito-transmitted malaria and other diseases constitute definite problems facing the Division. It is only by knowledge of the breeding areas and numbers of these insects that control programs can be started.

ENGINEERING SERVICE:

The control of certain diseases with which the Division is concerned necessitates the building of drainage systems, changes in and supervision of the construction of buildings. Specially trained engineering assistance is available from the Division of Sanitary Engineering, in addition to the full time engineer attached to the Division of Epidemiology.

EDUCATIONAL SERVICE:

All public health programs are made up to a considerable extent of methods of educating the public. The State Board of Health has been fortunate in having the assistance of experienced educators who have been of great

value to the Division both for consultation and for the administration of programs. The distribution of literature of many kinds giving information about certain communicable diseases is being carried out constantly. A film library is also maintained by the Division. At present seventy-six films are available for distribution. Topics covered include malaria, typhus fever, tuberculosis, venereal disease, and many others.

MEDICAL SERVICE:

The services of the Director of the Division are available constantly for investigating epidemics or outbreaks of diseases, and consultation in case of illness suspected of being due to a communicable disease; for assisting in the outlining of control programs for such disease problems; and for the general supervision of the other services of the Division. In addition, the assistance of one or more medical officers with special knowledge in regard to the venereal diseases is available.

THE EPIDEMIOLOGICAL PROGRAM:

All of these services are used to carry out the fundamental program of the Division which is the investigative or epidemiological program. By use of the laboratory, entomological, and medical services, the diagnosis of a disease that suddenly appears and spreads rapidly in some area, as reported by the tabulating service, can be made; and with the aid of the engineering, educational, and other services necessary, the medical officer can aid in working out a control program. In certain instances the control program is administered through the Division itself. At present five major control programs are being administered in this way.

VENEREAL DISEASE CONTROL PROGRAM:

An enlarged program has been administered by the Division of Epidemiology for several years for the control of venereal disease. Considerable federal financial aid, as well as aid from the Reynolds Foundation, has made possible one of the most intensive fights against

the venereal diseases in the United States. The tabulating, educational, laboratory, and medical services are all playing an important part in this program.

THE GENERAL COMMUNICABLE DISEASE CONTROL PROGRAM:

The rules and regulations governing the reporting, isolation, and quarantine of communicable diseases in North Carolina are prepared by this Division for submission to the State Board of Health. The administration or the application of these regulations after adoption by the State Board of Health is one of the major parts of this program. All of the services take part in this work.

THE MALARIA CONTROL PROGRAM:

Special measures have been taken in North Carolina for many years for the control of malaria. At present the many units of the armed service stationed in North Carolina are receiving protection from this disease through the efforts of the War Areas Malaria Control Program. Under the direction of an experienced engineer, a large staff of field engineers, entomologists, and laborers is carrying out widespread drainage and larvicidal work in the war areas of the State. This program is financed in its entirety by the U. S. Public Health Service. Other personnel are maintaining a state-financed program in the other parts of the state. This consists of the location of breeding areas, the supervision of local control programs, and surveys to determine the prevalence of malaria. All of the services of the Division are taking part in this program.

THE TYPHUS FEVER CONTROL PROGRAM:

Endemic typhus fever has been steadily on the increase in North Carolina in recent years.

Since the disease is spread by rats, a control program necessitates extensive rat proofing and extermination. Under the direction of a trained engineer of the Division of Sanitary Engineering, an increasing number of local programs have been originated throughout the state and put under supervision. Again, all the services of the Division take part in this work.

ADMINISTRATION OF THE PREMARITAL EXAMINATION LAW:

In April, 1939 the state legislature passed a law requiring a premarital examination for mental diseases, tuberculosis, and the venereal diseases. The administration of this law has been handled by the Division of Epidemiology. Medical and education services have been in charge of this program.

NEW SERVICES AND PROGRAMS:

At all times improvement in methods and the training of personnel is being carried out wherever possible. As the need for new services arises the resources of the Division are used to their fullest extent to provide them. At present a reorganization of the typhoid fever carrier register is being made. Improvements in the system of reporting notifiable diseases is planned. Revision of the rules and regulations for communicable disease control has been receiving attention for some time. An expansion of the tabulating service pertaining to the venereal disease control program was started recently.

The post war period, with its increased air travel, is expected to bring new problems in connection with the established control programs such as malaria fever control, and to create the need for new programs for control of diseases now prevalent in the war areas of the world.

A Review Of The Abattoir Situation In North Carolina

By F. G. DOGGETT, Sanitary Engineer
North Carolina State Board of Health
Raleigh, North Carolina

PRIOR to March, 1943, when the Office of Price Administration and the State War Board, in response to an order from the United States Department of Agriculture, set forth certain minimum sanitary requirements relative to the slaughtering of meat, the word "abattoir" apparently had little significance in North Carolina. Even a few newspaper reporters have commented on having to consult the dictionary as to spelling and definition. Webster defines an abattoir as a public slaughterhouse for cattle, hogs, sheep, etc. Our North Carolina Laws, Rules and Regulations governing sanitation, however, define an abattoir as any slaughtering, meat canning, curing smoking, salting, rendering, or other similar establishment handling cattle, swine, sheep, or other animals that can be or that are ordinarily slaughtered in abattoirs.

In 1937 the North Carolina Legislature passed an enabling act which provided for the sanitation of meat markets and abattoirs. After investigation, it was found that our better grades of meat were, for the most part, supplied by western packers, while only the cheaper grades were slaughtered in North Carolina. To be sure, a few of our abattoirs handle first-class beef cattle, as Herefords and Aberdeen Angus, but the majority of the animals slaughtered, other than pork and veal, were bulls and dairy cows, which cannot be expected to render a high grade of meat.

At the time this act was passed, the beef cattle industry in the State was beginning to develop slowly. Therefore, it was considered advisable to encourage the sanitation of abattoirs wherever possible, but not to promote the construction of new abattoirs so

vigorously as to discourage small butchers and the development of a growing industry. In view of this, a campaign of education and encouragement was followed in connection with the abattoir sanitation program until March, 1943. On the other hand, a vigorous sanitation program was considered necessary in connection with meat markets, and this program has been conducted in North Carolina during the past five years. The resulting improvements in cleanliness and general sanitation have been very gratifying.

The primary purpose of the action taken by the United States Department of Agriculture last March was to forestall black market operations, so as to insure an adequate supply of meat for the armed forces, and fair distribution of the remainder among our citizens and fighting allies. Other important considerations were the protection of the public from meat handled in an insanitary manner by unscrupulous operators, and the conservation of the valuable by-products, the hides and grease being the most important.

As a result of this order, the State Board of Health was requested by the State War Board to begin the enforcement of the rules and regulations pertaining to sanitation. In this connection, it is interesting to note that the minimum sanitary facilities set up under the Federal regulations conform very closely with the regulations adopted by the State Board of Health in 1939.

The State Board of Health realized that only a comparatively small number of abattoirs in the State met with requirements for approval, and that with the shortage of skilled labor and other limitations on construction, it was an inopportune time to begin the en-



BACK VIEW OF THE WINSTON-SALEM MUNICIPAL ABATTOIR

forcement of abattoir regulations. On the other hand, any time is an inopportune time to have a war, and since enforcement had been deemed a necessary contribution to the war effort, it was decided to start this program. Inasmuch as the enforcement of the sanitary regulations has been begun as a wartime necessity, it should not be supposed that it will be a temporary measure; on the contrary, it is very likely that it will be more vigorously enforced after the war ends.

As a result of this request for cooperation by the State War Board, our district sanitation personnel began contacting the County Health Departments, and County War Boards, when requested, and others desiring information relative to satisfactory sanitary means of slaughtering and handling meat. Numerous county meetings were held, to which all interested butchers and market operators were invited, so that the regulations and requirements could be explained. Suggested plans of various sizes and types of abattoirs were also prepared and are furnished free of charge to interested parties by the Division of Sanitary Engineering.

In many counties it was found that slaughtering was being conducted in a primitive manner in the woods, or in makeshift slaughterhouses located adjacent to hog lots or stables,

and sometimes even in feed barns. In most cases, little or no consideration had been given to measures essential to the sanitary handling of meat. Frequently the premises were found to be strewn with bones, heads, paunches, manure, and other abattoir wastes, which attracted flies, dogs, rats, and even buzzards. All too frequently, the blood and animal offal were fed uncooked to hogs in lots adjacent to the slaughterhouse. Such a practice not only creates a very insanitary condition on the premises, but it also provides one of the surest means of spreading diseases that are common to swine, such as cholera, tuberculosis, and trichinosis.

Trichinosis is a parasitic disease which is communicable to man through the eating of pork, sausage, or cured meats which have not been thoroughly cooked. When contracted by a human, it is likely to cause a serious illness which may be fatal. The thorough cooking of abattoir wastes intended for hog feed eliminates the danger of spreading disease, and at the same time produces a more digestible feed.

In seeking compliance with the State law governing the sanitation of abattoirs, the Division of Sanitary Engineering, in cooperation with County Health Departments, has made every effort to assist interested slaughterers,



STOCK PENS AND ABATTOIR AT WINSTON-SALEM

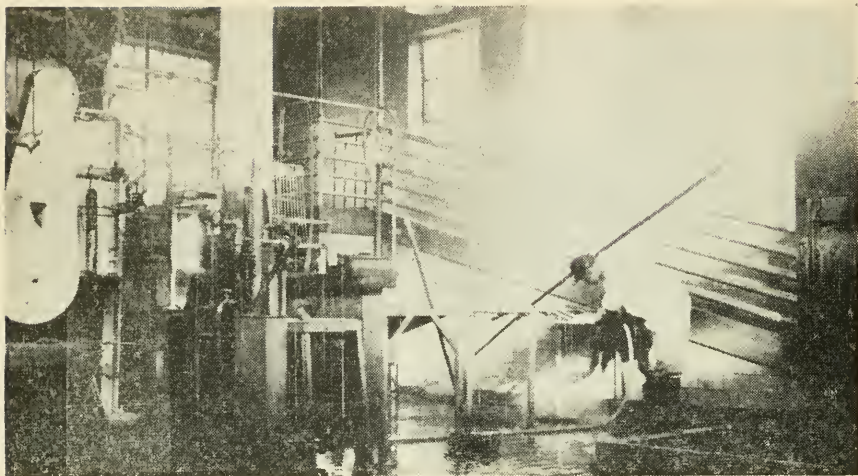
and on several occasions has granted temporary extensions on the time allowed for the construction of a new plant and for making improvements to existing structures. It is now felt, however, that sufficient time has been given for slaughterers to comply with the law, and enforcement is being carried out as rapidly as possible.

Plans for abattoirs, like those for water works and sewerage systems, are required to be approved by the State Board of Health. In general, plans should include concrete or tile floors, plastered walls, and provisions for handling edible and inedible products in separate rooms. All outside openings must be effectively screened, and all screen doors must open outward and close automatically. There must be an abundance of light and ventilation. The water supply must be obtained from a municipal, or an approved private supply. Water-carried sewage, modern plumbing fixtures, with hot and cold running water, are primary essentials. Utensils, containers, as well as other equipment, must be kept clean and in good repair. Ante-mortem and post-mortem inspections by competent veterinarians will be encouraged, and at the present time are a definite local requirement in several of our larger municipalities. Employees in abattoirs

are required to have health certificates, and to observe a reasonable degree of personal cleanliness. The stock pens must be well drained, and, in general, the premises must be maintained in such a manner as not to breed flies or rats, or attract stray dogs or buzzards.

The cost of abattoirs varies widely, depending, of course, upon the needs in question and the location. For the small operators, who at no time will have occasion to slaughter more than two or three beef animals on any one day, or three to six hogs, a properly arranged and equipped one-room abattoir, 18'x21' 6", is considered adequate. In addition to the other fundamentals previously mentioned, such an abattoir should be provided with an outside knocking pen having a trap-door arrangement for rolling the stunned animal into the killing room, a beef windlass for hoisting the carcass, and a dressing or hanging rail. The scalding tub may be one of the conventional furnace types, but it must be so constructed as to permit firing from the outside. Suitable metal drums with tight-fitting covers would be used for the storage of leg bones and other offal until the same could be disposed of in an approved manner. Such a structure would probably cost from \$1,000 to \$1,500.

For the very smallest operator who does not



INTERIOR VIEW, WINSTON-SALEM MUNICIPAL ABATTOIR

anticipate the slaughter of more than one beef animal, or two or three hogs, on any occasion, a one-room abattoir about 14'x16' is acceptable. The outside knocking pen and the dressing and hanging rails may be omitted. This type of structure might very well be constructed for less than \$1,000.

For the larger operators, it is necessary that a separate meat hanging room be provided where the dressed carcasses can be stored and allowed to lose some of the animal heat prior to removal to the cold storage plant. Such a room should be dark, but exceedingly well ventilated. There must also be a separate room or rooms for handling the inedible products.

It is always highly desirable to chill the carcasses as soon as possible after the dressing operations are completed, in order to prevent the rapid growth of bacteria that will cause spoiling of the meat. Therefore, an abattoir is not complete without adequate cold storage. A modern, up-to-date abattoir has its cold storage facilities divided into a chill room (temperature about 34°F.) and a cold storage room. The meat is first placed in the chill room, where the animal heat is lost quickly, and then is removed to the cold storage room. This procedure improves the appearance and

the keeping qualities of the meat.

The importance of almost immediate refrigeration after slaughtering operations are completed is too frequently overlooked, since it is generally felt that thorough cooking will render the meat safe even though it might have become slightly tainted. This is an erroneous assumption, however, since certain types of bacteria, if allowed sufficient period of growth, will produce toxins or poisons that no amount of cooking would be likely to destroy.

One of the most modern abattoirs in the State is the municipal abattoir in Winston-Salem which is owned and operated by the city. It was constructed about six years ago at a cost probably exceeding \$50,000. Some of the features of this plant are as follows:

1. The stock pens are covered, and are provided with concrete floors and walks sloped to drain. On account of the plant's location, adjacent to a residential section, a calf storage pen was provided of sound-proof construction.
2. Ante-mortem and post-mortem inspections are provided by a full-time veterinarian.
3. The killing room has a tile floor and walls that are kept almost spotless. Ample equipment has been provided, and this is exceedingly well arranged.

4. The inedible products are removed to an adjoining room where special equipment is used to prepare the same for the rendering operations which are taken care of in the basement. The arrangement is such that the odors of the rendering operations are confined entirely to the basement, and even there most of the odors are eliminated by condensing the steam from the cooker, and turning the condensate into the sewer.

5. The dressed carcasses are first chilled, then transferred to the cold storage room. This is easily accomplished by a convenient track arrangement which permits even the

largest carcasses to be moved by a gentle push of the fingers.

Unlike the old and antiquated slaughterhouses which were located in out-of-the-way places to avoid nuisance complaints, modern abattoirs should be located where they will be accessible to municipal water supply and sewerage systems, electric power, and paved streets. It is true that consideration should be given to a location from the standpoint of noises and other aesthetic reasons, but no longer need a properly constructed and operated abattoir offend the public.

Life and Death in North Carolina in 1943

By WILLIAM H. RICHARDSON

North Carolina State Board of Health
Raleigh, North Carolina

THE State Board of Health's Division of Vital Statistics is devoted to the duty of carrying on one of the Board's most important activities—the bookkeeping of life and death in North Carolina. It keeps an accurate record of births and deaths and the number of people who die of various diseases. Unlike ordinary statistics, these reports always hold the public's interest, for they affect every individual from the cradle to the grave, and indicate health trends, which are of especial significance during the critical period through which we now are passing.

If we win on the battlefronts and lose our fight for health, we will be unable to preserve the fruits of victory. A homely comparison, perhaps, but unless we garner our agricultural products and store them away for future use and consequent enjoyment, they become worthless and represent just so much wasted effort. They must be utilized to satiate both hollow and hidden hunger, if they serve the purposes for which they were intended.

And so—we must preserve and conserve

our health, so as to be able to garner and utilize the fruits of victory for the nourishment of our spiritual structure, in order that it, too, may be stronger, after we have satisfied our hollow hunger with military victory. We are told that man cannot live by bread alone.

The Division of Vital Statistics has compiled its provisional report for the year 1943, the second full year of our participation as an active belligerent in World War Number Two. During the year 95,251 babies were born in North Carolina to set an all-time record and bring the rate up to 25.7, as compared with 24.6 in 1942, when the number of births reported was 90,056. We have in the past established higher rates—in fact, we once led the entire Union in that respect, but our population was smaller than it is now and the actual number of births was not nearly so great.

During the past year, the number of deaths reported was 30,072, which kept the State's death rate at 8.1, the all-time low record established in 1942. Births recorded during



Thomas Bashford, age 16 months, son of Mr. and Mrs. Thomas Bashford, Raleigh, North Carolina. Good health procedures have given this young man a favorable start in life.

1943 exceeded the number of deaths by 65,179.

Deaths among infants under a year old totaled 4,434, which brought the rate down from 47.5 to 46.6, while the maternal rate, despite the substantial increase in the number of births, was reduced from 3.4 in 1942 to 3.3 in 1943. To state this in more understandable terms, only 322 mothers died in connection with or as the result of 95,251 births. Puerperal septicemia claimed 45, as compared with 49 the preceding year.

There were, during the past year, 1,526 deaths from what are termed preventable accidents, as compared with 1,513 in 1942, but the 1943 total includes the victims of the Atlantic Coast Line disaster of December and certain other casualties which were much higher than in previous years.

The influenza epidemic, which was responsible for 104 deaths in December, as compared with only 36 in December, 1942, brought the 1943 total to 440, against 296 the preceding year. The epidemic was reflected in deaths

from pneumonia during December, of which there were 226, carrying the year's total to 1,692, which was 15 in excess of the 1942 total. But the rate dropped from 45.8 to 45.7.

As might have been expected, there was an increase in cancer deaths, which last year numbered 2,317, as compared with 2,219 in 1942, while the rate rose from 60.6 to 62.6.

Tuberculosis deaths, however, continued to decline, numbering 1,445, against 1,578 the preceding year, while the death rate from all forms of tuberculosis fell from 43 to 39.1. This presents a strong argument in favor of the untiring efforts of those who are battling against the great white plague.

North Carolina last year shared in the increased number of deaths resulting from epidemic cerebro-spinal meningitis, with 52, as compared with only 19 in 1942. For some reason there has been a sharp increase in the number of meningitis deaths throughout the entire country for the past year. However, there were encouraging reports as to the successful treatment of this disease, but for which



Twin daughters of Mr. and Mrs. A. F. Fogleman, Route 2, Liberty, N. C. These little girls were born March 2, 1943. The Fogleman family was examined in the Nutrition Clinic at Graham December 6, 1943.

the fatality list undoubtedly would have been much larger. Treatments administered among the armed forces have been strikingly successful.

Suicides in North Carolina during the past year numbered 253, against 237 in 1942. Of course, there was some definite cause for each individual case—and as yet there is no scientific formula for the prevention of self-destruction.

The 1943 report, however, does show a decline in the number of homicides, with only 258, as compared with 337 the preceding year.

That the fight against malaria continues to show results is indicated by the fact that malaria deaths in North Carolina last year numbered only 22, compared with 37 the previous year, while the rate fell from 1 to 0.6. In 1922, for example, there were 177 deaths from malaria in North Carolina, and as late as 1935 there were 94 such deaths.

As to typhoid fever, there were only 19 deaths from that preventable disease in North Carolina last year, compared with 299 in 1922 and 83 as late as 1935.

Going back to tuberculosis for a moment, it is interesting to note that in 1922 there were 2,590 deaths from all forms of tuberculosis, compared with 1,936 in 1935, and 1,445 last year. The rate between 1922 and 1943 dropped from 97.5 to 39.1—that is for all forms of tuberculosis. In 1914 the death rate was 139.3 and in 1915 it was 156.4.

While it is generally agreed that diphtheria by this time should be practically non-existent

in North Carolina, yet we really have gone a long way in that direction, when it is considered that in 1922 there were 510 diphtheria deaths in this State, compared with 164 as late as 1935 and only 56 last year, while the rate dropped from 19.2 in 1922 to 1.5 last year, when there were within 4 as many deaths from epidemic cerebro-spinal meningitis as from diphtheria.

And so, we have a general picture of health conditions in North Carolina during the second year of America's participation in the second World War as an active belligerent. One of the most encouraging features is that our death rate has been held down to its lowest level in our history, despite the phenomenal increase in births; that our infant mortality rate not only has NOT advanced with the increased number of births but has declined. This is significant, certainly when we consider the absence of so many physicians and nurses who have entered the armed forces, and it speaks well not only for the public health clinics dedicated to the care of mothers and infants but for the private practitioners of medicine.

In fact the whole health picture reflects credit upon our physicians, upon public health workers and upon both curative and preventive medicine. If we can hold out on the health front until this war is over on the battlefield and then coordinate and rededicate all our scientific advances to the alleviation of human ailments, we undoubtedly will occupy a most advantageous position in our march toward freedom from disease.

NORTH CAROLINA BUREAU OF VITAL STATISTICS

PROVISIONAL REPORT FOR 1943

	1943	1942
Total number deaths	30,072	29,613
Death rate	8.1	8.1
Total number births	95,251	90,056
Birth rate	25.7	24.6
Infant deaths (under one year)	4,434	4,281
*Infant mortality rate	46.6	47.5
Maternal deaths	322	308
*Maternal mortality rate	3.3	3.4

	Number	Rate	Number	Rate
Typhoid and paratyphoid fever	19	0.5	21	0.6
Endemic typhus fever	11	0.3	10	0.3
Undulant fever	0		2	0.05
Smallpox	1	0.03	0	
Measles	20	0.5	55	1.5
Scarlet fever	8	0.2	10	0.3
Whooping-cough	109	2.9	99	2.7
Diphtheria	56	1.5	70	1.9
Influenza	440	11.8	296	8.0
Acute poliomyelitis and polioencephalitis	12	0.3	11	0.3
Epidemic cerebrospinal meningitis	52	1.4	19	0.5
Rabies	0		1	0.02
Tetanus	20	0.5	16	0.4
Tuberculosis, pulmonary	1,332	36.0	1,451	39.6
Tuberculosis, other forms	113	3.1	127	3.4
Syphilis, locomotor ataxia, paresis	271	7.3	298	8.1
Malaria	22	0.6	37	1.0
Cancer, all forms	2,317	62.6	2,219	60.6
Diabetes mellitus	457	12.3	445	12.2
Pellagra	110	3.0	110	3.0
Pneumonia, all forms	1,692	45.7	1,677	45.8
Diarrhea and enteritis (under 2 yrs.)	438	11.8	464	12.6
Appendicitis	173	4.6	193	5.2
*Puerperal septicemia	45	3.3	49	3.4
*Puerperal, other forms	277	3.3	259	3.4
Suicide	253	6.8	237	6.4
Homicide	258	7.0	337	9.1

PREVENTABLE ACCIDENTS

**Automobile accidents, primary	654	17.6	832	22.7
**Automobile and railroad collisions	37	1.0	28	0.8
Other railroad accidents	146	3.9	104	2.8
Air Transportation accidents	232	6.2	56	1.5
Accidental drowning	161	4.3	182	5.0
Conflagration and accidental burns	229	6.1	220	6.0
Accidental traumatism by firearms	67	1.8	91	2.4

February 5, 1944

*Infant and maternal rates (per 1000 live births)

**Deaths from Automobile Accidents include those occurring on Military Reservations, and those not classified as Traffic Accidents.

These figures are provisional and subject to increases due to delayed reports.



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FREE HEALTH LITERATURE

The State Board of Health publishes monthly THE HEALTH BULLETIN, which will be sent free to any citizen requesting it. The Board also has available for distribution without charge special literature on the following subjects. Ask for any in which you may be interested:

Adenoids and Tonsils	German Measles	Sanitary Privies
Appendicitis	Health Education	Scabies
Cancer	Hookworm Disease	Scarlet Fever
Constipation	Infantile Paralysis	Teeth
Chickenpox	Influenza	Tuberculosis
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Endemic Typhus	Pellagra	Typhoid Placards
Flies	Residential Sewage	Water Supplies
Fly Placards	Disposal Plants	Whooping Cough

SPECIAL LITERATURE ON MATERNITY AND INFANCY

The following special literature on the subjects listed below will be sent free to any citizen of the State on request to the State Board of Health, Raleigh, North Carolina.

Prenatal Care.	Baby's Daily Time Cards: Under 5 months;
Prenatal Letters (series of nine monthly letters).	5 to 6 months; 7, 8, and 9 months; 10, 11, and 12 months; 1 year to 19 months; 19 months to 2 years.
The Expectant Mother.	Diet List: 9 to 12 months; 12 to 15 months;
Breast Feeding.	15 to 24 months; 2 to 3 years; 3 to 6 years.
Infant Care. The Prevention of Infantile Diarrhea.	Instruction for North Carolina Midwives.
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April "Cancer Control Month"

THE Congress of the United States in 1938 took cognizance of cancer as one of this country's greatest killers by setting aside the month of April as "Cancer Control Month." During this time the Women's Field Army of the American Society for the control of Cancer conducts an intensive nation-wide educational campaign. Men and women are asked to enlist in its ranks and to help carry to everyone in the country the message that cancer can be cured if discovered and treated in its early stages.

The Women's Field Army

The Women's Field Army is the applied educational arm of the American Society for the Control of Cancer, which is the only voluntary organization in the country conducting an all year round campaign to help reduce the huge death rate from cancer. The Women's Field Army was organized in 1935. Today it numbers 250,000 volunteer members, and has Divisions in forty-six states. Its program for educating the public about cancer has the approval and cooperation of the American Medical Association, the American College of Surgeons, the U. S. Public Health Service and the large national women's organizations. The program is guided by state and local medical societies.

Cancer Is Always An Emergency

Only prompt treatment by surgery, x-rays or radium, while the disease is in its early stages can save the life of the person who has it. One hundred thousand individuals die needlessly of cancer each year in the United

States because they put off a visit to their doctor after they had discovered telltale signs. Delay makes cancer the second highest cause of death in the United States. Approximately 480,000 persons have cancer who will live only from one to three years. More than 160,000 die annually.

Gruesome, you say. Yes. And all the more appalling because it is largely unnecessary. for today doctors know much more about cancer and its cure than they did even ten years ago.

How You Can Help

Enlist in the Women's Field Army every April and participate actively in its work.

A variety of literature may be procured without charge from your local unit of the Women's Field Army, or from the American Society for the Control of Cancer.

If there is no unit of the Field Army in your community, help organize one. Write the state headquarters of the Women's Field Army for aid in doing this: North Carolina Division—Women's Field Army, The American Society for the Control of Cancer, Inc., Fulton Building, Mount Airy, N. C.

The Nature of Cancer

Cancer is a sudden, uncontrolled growth of body cells. This growth can take place in any part of the body. It happens usually after middle age, but cancer in babies and children is not uncommon.

It is not contagious or infectious. It is not due to a germ. It is not a "blood disease."

Among men the most common sites of cancer are the organs that form the digestive and genital groups. As shown by the chart, the greatest number of deaths among men are caused by cancer of the stomach, prostate, intestines and rectum. Among women, the greatest causes of death are cancer of the womb, breast, stomach and intestines.

It is now known that long continued irritation to some part of the body can cause cancer. This may be due to mechanical, chemical or other causes. Farmers, sailors and other outdoor workers, for example, are known to develop cancer of the skin from long continued exposure to the sun. Here are some things you can do to help protect yourself against cancer:

1. Have a regular physical examination by a recognized physician at least once a year. Women over thirty-five should have a B.P. (breast and pelvic areas) examination semi-annually.

2. Keep the mouth, tongue and throat clean.

3. Keep the teeth clean and free from cavities and jagged edges that chafe the tongue or cheek.

4. Avoid excessive use of tobacco, especially if it irritates or burns the tongue, cheek or lips.

5. Avoid the use of food or drink that irritates the stomach or that causes irregularity in action of the intestines (bowels).

6. Keep the skin clean.

Danger Signals of Cancer

Do not wait for pain before consulting your doctor if you think you may have cancer. Pain is a late symptom. After it appears, cure is not always possible. Speed in diagnosis and treatment is essential. Any of the following signs are "danger signals" of cancer. If you have even one of them, consult your doctor immediately.

1. Any persistent lump or thickening particularly in the breast.

2. Any irregular bleeding or discharge from any body opening.

3. Any persistent and unexplained indigestion.

4. Any sore that does not heal normally, especially about the tongue.

5. Any sudden change in the form or rate of growth of a mole or wart.

Murine Typhus Fever Control

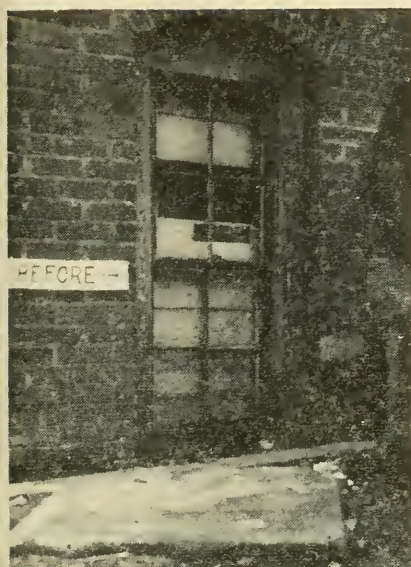
*By E. L. HINTON, Sanitary Engineer
Typhus Control Unit
Division of Sanitary Engineering*

THE increasing widespread incidence of murine typhus fever in the United States, and especially in North Carolina, has gained sufficient momentum to attract considerable interest as a major public health problem. A typhus fever control unit was organized by the North Carolina State Board of Health April 1, 1940. At that time an engineer was employed to carry on the control programs. The control measures adopted were, in general, based on the rat control methods employed by the U. S. Public Health Service. These control measures consist of a modified form of

rat proofing of buildings, garbage control and clean-up of premises, and rat extermination.

Rat Stoppage

Rat stoppage, as the name implies, is the closing, or protection of openings in the exterior walls of buildings to prevent the ingress of rats. (Figure 1) Basically, it is a part of rat proofing, but must be applied to all adjoining buildings, in a given area, in order to obtain the most effective results. In municipalities, the principal rat harborages are buildings which have unprotected openings in the



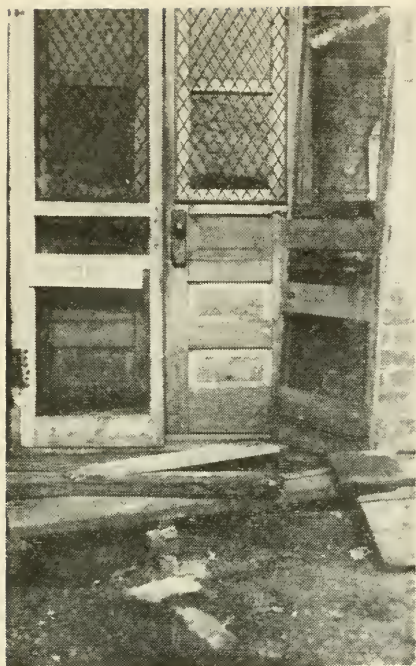
exterior walls, such as those for ventilation, pipes, and cables, and those due to deteriorated walls, and around doors and windows that do not fit snugly. Openings of this nature serve as active points of entry into buildings, and are the main lines of travel for rats between food supplies in adjoining buildings and alleyways, and their harborages inside. Rat stoppage, therefore, serves as the first line of defense against rat invasion of buildings. Rat stoppage is accomplished by first making a survey of the business establishments. The survey is based on actual conditions found for each business establishment. This is necessary to determine the materials needed and the cost thereof for each establishment, in order that correct estimates may be submitted. The estimates are based on actual conditions found at each establishment, and special forms are used to record the information secured.

To protect the edges of doors against rat gnawings, 24 or 26 gauge galvanized metal is used and installed in the manner shown in Figure 2. Care is exercised in replacing all decayed portions of doors and door facings

before flashing, in order to secure permanency of the work. It is important that doors should be installed in open stairways, and kept closed at night to prevent the entrance of rats. Flashing front doors on a busy street is usually unnecessary, because when such doors are installed so as to fit snugly, rats have rarely been found to gnaw through them.

Ventilator openings in foundation walls are often main points of entry into buildings for rats. In the majority of buildings that we have inspected, and found to be rat infested, ventilator openings were found in which metal grills were either removed, broken, or had never been installed. To protect these openings properly, metal grills are installed when needed, and covered with a 19 gauge galvanized hardware cloth of $\frac{1}{2}$ " mesh. Many old buildings contain over-size ventilators and abandoned windows in the foundation walls. These are partially closed with masonry, and in the remaining opening metal grills are installed, thereby giving ample ventilation to the building. Coal chutes are usually another entry for rats. To protect these openings, metal doors are installed.





To protect windows, especially those which are close to the ground, against rat entry, and at the same time not reduce appreciably the amount of light passing through them, 19 gauge galvanized hardware cloth of $\frac{1}{2}$ inch mesh is used. The hardware cloth is installed for the entire height and width of the window.

Miscellaneous openings, like those through which pipes, cables, and drains pass, and those caused by the deterioration of walls, are sealed with brick, metal, or concrete. Great care is exercised in properly sealing or protecting abandoned sewers and drains leading into buildings.

It is realized that rat stoppage, like rat proofing, does not insure against the invasion of rats by accidental means. However, if rat stoppage is properly maintained, business establishments may be kept free of rats by occasional poisoning, or trapping.

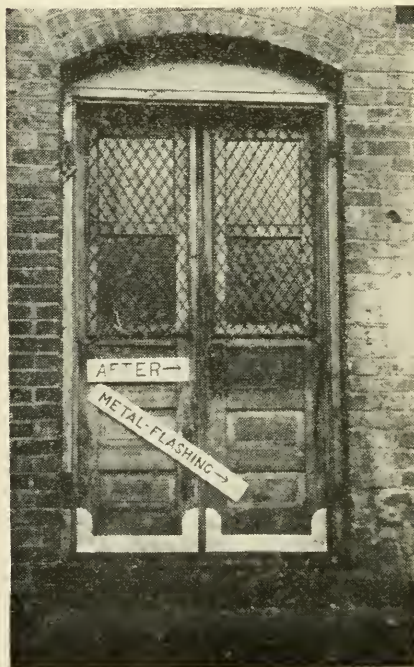
Garbage Control and Clean-Up

This part of the typhus control program, which is of secondary importance to rat

stoppage, is essential in reducing the general rat infestation of a community to a minimum, and in maintaining it there. Garbage control and clean-up should be a continuous community-wide activity. The effectiveness of this control measure is attained through the elimination of the source of food supply for rats, chiefly exposed garbage, and the elimination of harborage that is created principally by outbuildings, rubbish, discarded lumber, equipment, boxes, piles of brick that are found on premises, and especially in basements of buildings.

Extermination

Rat extermination, employing the use of poisoned bait (principally Red Squill) is a very important part of a typhus fever control program. Trapping, also, has become very important. Rat stoppage, if properly carried out, will obviously block a large part of the rat population of any business area inside the buildings, and it is often found necessary to employ some form of extermination in these



buildings, due to the complaint of merchants of the increased activity of rats. Especially is this the case with foodhandling establishments. Trapping is the most desirable means of accomplishing this purpose. It is relatively inexpensive, as well as efficient, in that usually only a very short period of time is required to eliminate all the rats blocked within a building. It also provides a means of removing rats from buildings each day, thereby eliminating any complaints from merchants because of obnoxious odors resulting from decaying rat carcasses.

After considerable deliberation on the typhus fever control program, as set forth by the U. S. Public Health Service in the April 6, 1943, issue of Public Health Reports, we have decided to pattern our programs along the same line, provided local authorities will comply with the following requirements, which are necessary to insure the success of the projects:

(1) Enact suitable ordinances.

(2) Provide one or more inspectors for training, so that the program may continue after the Public Health Service or State Board of Health withdraws its personnel.

(3) Provide someone to handle all local finances.

(4) Provide the laborers needed to do the construction work and trapping. The laborers' wages can be charged against the owners or occupants of the buildings that are rat proofed.

(5) Obtain a loan from the city, Chamber of Commerce, or other agency, in order to purchase, in advance, sufficient critical materials and tools to carry out the proposed project. This money will be paid back as collections are made for work completed.

(6) The local health department must agree to extend and maintain the program.

At the present time the Typhus Control Unit, Division of Sanitary Engineering, and the Typhus Control Unit of the U. S. Public Health Service are able to furnish the following assistance to local health departments for conducting programs to limit the spread of murine typhus:

(1) Provide, according to the requirements of each program, one or more trained sanitarians capable of conducting all the different activities of a typhus control project as follows:

(a) Make preliminary surveys to determine the extent of rat infestation of each building, the measures necessary for rat proofing it, and the costs of each job.

(b) Supervise the work of the laborers engaged in rat proofing.

(c) Supervise the trapping and poisoning operations.

(d) Train local personnel assigned to the program in all aspects of the work.

(2) Provide trained personnel and apparatus needed for cyanide fumigation of rat-infested buildings, when this is necessary.

(3) Furnish some of the automotive equipment needed to carry on rodent control operations.

(4) Lend sufficient rat traps for the programs.

(5) Assist in procuring critical materials.

(6) Provide senior personnel to inspect the progress and character of the work at frequent intervals.

(7) Assist local health departments in promotional activities, and make preliminary surveys to determine the approximate amount of materials needed for the programs.

(8) Assist in formulating suitable local ordinances.

We cannot provide assistance indefinitely, but we will assist the programs until the personnel of the local health department is capable of carrying on the work in a satisfactory manner.

The State Board of Health, Typhus Control Unit, Division of Sanitary Engineering, is very proud to announce that we own two 1941 one and one-half ton Ford trucks, completely equipped with carpenters', tinnners', and masonry tools. These trucks will be detailed to cities and towns throughout North Carolina to combat Murine Typhus Fever.

The Laboratory In The Public Health Program

By JOHN H. HAMILTON, M. D., Director
State Laboratory of Hygiene
Raleigh, N. C.

ALL of us realize that modern preventive medicine had its genesis in the laboratory. It was only the work of such men as Pasteur, Koch, Von Bohring, and Park that make possible our scientific approach to disease control. Although many refinements have been made in procedure since the days of Jenner and Pasteur, the laboratory still plays an important part in our public health program.

In North Carolina, the State Laboratory of Hygiene was authorized by the General Assembly of 1907 for the purpose, primarily, of making examinations of public water supplies. In December of that year, Dr. Clarence A. Shore became director of the Laboratory and guided its destinies with an intelligent and unselfish loyalty for more than twenty-five years.

The State Laboratory of Hygiene is primarily a service institution, the chief duty of which is to aid in promoting public health in North Carolina. The activities of our laboratory are limited almost entirely to those procedures intended to aid in the control of infectious diseases in man.

The services of the laboratory are of four main types:

1. The Examination of Specimens
2. The Production of Biologics
3. The Making of Special Investigations
4. Administration

The work is divided among groups of workers. All members of the staff are especially trained for their particular work.

1—EXAMINATION OF SPECIMENS

(a) **Water Group**—Makes sanitary analyses of water from all parts of the State. A sanitary analysis of water consists of bacteriological

and chemical tests to determine whether or not the water supply contains pollution and if so, to what extent. Contrary to general belief no routine attempt is made to isolate typhoid or dysentery bacilli from water. The bacteriological work on water consists of the presumptive test for the coli-aerogenes group and a total bacterial count both on plain nutrient agar and litmus lactose agar. The routine chemical work consists of the determination of the hydrogen concentration of the water, chlorine content, and a qualitative test for nitrates and the physical analysis of the water. For the public supplies that treat their water, a quantitative test is made for alum and iron.

(b) **The Microscopic Group** — examines blood films for malaria; throat swabs for diphtheria and other micro-organisms; other swabs for infectious agents; sputum for tuberculosis and other infectious organisms; animal heads for rabies; feces for intestinal parasites; smears for gonococci; Darkfield Examination for syphilis and many other miscellaneous examinations.

(c) **The Bacteriological Culture Group**—makes blood cultures and cultures of urine, feces, spinal fluid and exudates. Some two-thirds of the patients suffering from typhoid during the past year have had Positive blood cultures, indicating that most of the typhoid fever in North Carolina is now diagnosed in the early stages when control measures are most effective. This Group also makes Agglutination Tests for typhoid, Endemic Typhus, Rocky Mountain Spotted Fever, Undulant Fever and Tularaemia.

(d) **The Serology Department**—makes serological tests for syphilis. Each specimen of blood received for this purpose is first sub-

jected to the Kline Test. All specimens, Doubtful or Positive, by this method are then tested by the Eagle Complement Fixation Test (Wassermann). Approximately 400,000 serological tests for syphilis are now made each year.

2—PRODUCTION OF BIOLOGICS

(a) The laboratory prepares and distributes:

1. Typhoid Fever Vaccine
2. Whooping Cough Vaccine
3. Diphtheria Antitoxin
4. Diphtheria Toxoid
5. Schick Test Outfits
6. Rabies Vaccine
7. Smallpox Vaccine

Each is prepared by a special group within this division. In the bacterial vaccine department; typhoid, para typhoid, Pertussis and Autogenous vaccines are made. All bacterial vaccines are made essentially alike. Known strains of the organisms are tested and examined to see if the cultures are pure. Then the cultures are inoculated on a suitable medium and grown for a specified time after which the growth is either washed or scraped off the media and suspended in a solution of saline. After tests have proved that the suspension is sterile, it is diluted and animal tests are run on it to see if it is safe for human consumption. If these tests are satisfactory, the vaccine is tubed and labeled and is then ready to send out.

For the production of Diphtheria of Tetanus Antitoxin a healthy horse is inoculated with a very small amount of toxin. These doses are gradually increased until a horse can stand from 100 to 125 cc. of the toxin. A test bleeding is made and if enough anti-toxin is found in the horse's blood, he is then put into what is called "production". He is given a large dose,—say on Monday, increased Tuesday and Wednesday, and doubled Thursday. Then he is rested for seven days and at the end of this period 9 liters or over two gallons of blood are taken from him. This blood flows into a solution of Sodium Citrate which keeps it from clotting. After the plasma has been drawn off—a preservative is added.

This plasma contains antitoxin. To concentrate the antitoxin, an equal amount of water is added and enough ammonium sulfate solution to give 30% strength ammonium sulfate. It is then heated in a water bath at 58 degrees C. for 1½ hours. The precipitate that forms is discarded and the filtrate saved. The filtrate is then measured, the amount of ammonium sulfate determined, and enough more added to make a concentrate of 50%. Another precipitate is formed and is separated from the liquid by filtration. The filtrate is discarded and the precipitate saved. This last precipitate contains the antitoxin. It is then pressed and run through a dialyzing bath which liquifies the precipitate. It is then filtered through a clay filter and tested for sterility, standardized and tubed. The only difference in the manufacture of Diphtheria and Tetanus antitoxin is that you start with the toxin that you desire to make the antitoxin for.

Alum Precipitated Toxoid is made by precipitating the toxin with alum and then standardizing the precipitate. Alum toxoid produces immunity against diphtheria.

Schick Test material is made by diluting diphtheria toxin to the desired strength.

Rabies vaccine, or the Pasteur Treatment as the public knows it, is prepared by injecting rabbits with a fixed rabies virus. At the proper time the brains of the injected rabbits are harvested and the vaccine is prepared from this material.

Our Smallpox Vaccine is prepared by inoculating calves with smallpox vaccine virus. When the reaction has proceeded sufficiently, the material is harvested and prepared for distribution.

Besides the biological products manufactured by the laboratory, it distributes at cost various drugs that are needed in public health work.

3—MAKING OF SPECIAL INVESTIGATIONS

Special Investigations are conducted from time to time as the need arises. The work involved in these investigations is usually carried on by the groups making examinations

of specimens or the production of biologics. Only occasionally up to the present time have we had attached to our staff special investigation workers. It is hoped that in the near future we may have whole time workers to make investigations worthy of the name Research.

During the past year investigations have been made on the effect of a commercial water softener upon the deposit of lime in bones and teeth of mice. A preliminary report on this investigation may be published soon. Work has been started on the effect of the water softener on vitamins during the cooking process. A study is underway to determine the Vitamin C content of vegetables grown in North Carolina. The findings on these studies will be published as soon as sufficient data have been accumulated.

A study was inaugurated to develop a satisfactory method of sending gonococcus culture material through the mails. A preliminary report on this study was presented to the State Laboratory Directors' Conference at New York in October, 1943, and has been accepted for publication in the *Journal of Laboratory and Clinical Medicine*.

We have continued to participate in the Nutrition Survey. Studies have been started to determine the prevalence and location of the *Rickettsia* infections occurring in North Carolina.

4—ADMINISTRATION

(a) For the filing of laboratory reports and keeping the financial records; purchasing of laboratory supplies; the preparation of specimen containers; the cleaning and sterilization of glassware; preparation of other supplies; the answering of correspondence, etc. the laboratory has a corps of office workers.

One unique feature of the laboratory is that all glassware is cleaned by means of a washing machine invented and developed by the laboratory staff. This washing machine turns out glassware much cleaner than it can be done by hand-washing and at considerable less cost.

(b) The Laboratory endeavors to produce all of the rabbits, guinea pigs and mice which it needs in its operation. Breeding colonies of these animals are maintained at the State Laboratory of Hygiene Farm. To date we have been very successful in the production of our small animals. Although we make no effort to produce more than we need, we have occasionally unexpected surpluses which we have sold to other institutions.

Our plant consists of the Central Laboratory Building on Caswell Square, 214 West Jones Street, which was dedicated on February 21, 1940, as the Clarence A. Shore Memorial Building, and the Laboratory Farm, located on U. S. Highway Nos. 1, 64 and 70, six miles west of Raleigh.

The Central Laboratory Building consists of four stories. On the first floor are located the mailing room, the media preparation room, the dish washing and sterilizing room, a store room, a small animal room and a machine shop. On the second floor are the business offices, the library, the water laboratory, the auditorium and the microscopic examination laboratory. On the third floor are found the filing room, the laboratory for serological examinations for syphilis and the bacteriological examinations. The fourth floor is devoted to the preparation of typhoid vaccine, pertussis vaccine, diphtheria toxoid, Schick Test Material and the latter stages of the preparation of smallpox vaccine, diphtheria and tetanus antitoxin.

The State Laboratory of Hygiene Farm consists of approximately 280 acres, 80 acres of which is under cultivation—200 acres in woodland. The farm has a frontage of 1550 feet on three National Highways and two railways. On this farm are located the farm laboratory buildings, two horse barns, one sheep barn, two small animal buildings and a smallpox vaccine building, a root storage cellar and several wooden sheds. On the farm we carry out the preliminary preparation of our antitoxins, our rabies vaccine and smallpox vaccine. The small animal buildings have made it possible for the laboratory to produce

the guinea pigs, rabbits, mice and other small animals which are needed in routine operations. We also grow on the farm the feeds best adapted to the needs of our animals.

Since the State Laboratory of Hygiene has been occupying its new plant for more than four years, it is now possible for us to render a fairly accurate accounting of our stewardship.

The most universal yardstick is the financial one with dollars and cents being the units of measure. Although we had devoted considerable study to operating costs under theoretical but unknown conditions, it is definitely reassuring to find that in actual experience our cost estimates contained no gross errors. Actual operating costs for the first fiscal period increased only 10.1 percent whereas the volume of work performed increased at least 34%.

The fundamental purpose of the laboratory is, of course, to render service. In the new plant we have been able to render service which could not have been performed in our old plant. We have also been able to perform a greater volume of work than would have been possible without additional space. During 1943—628,392 examinations were made on specimens sent to the laboratory. For 1942 the comparable number was 692,231.

Serological tests for syphilis still comprise the principal load of the laboratory so far as specimens are concerned. In 1943 there were 562,041 serological tests for syphilis compared with 613,251 in 1942. In 1939 there were 372,149. In 1943 387,039 of these were from civilians and in 1942—379,185. In 1943 there were 175,002 tests for the Selective Service System and in 1942—216,066 from this source. We have made no statistical study of the specimens originating from the Selective Service System, since this work is being done by the United States Public Health Service. From civilian sources, however, punch cards are being made for each specimen. Tabulations indicate 11.5% of all specimens are reported as giving positive reactions. The positive reports by race and sex are: white male—69%;

white female—4.2%; negro male—22.1%; negro female—18.9%; others or unidentified—9.9%.

Each year the laboratory participates in the evaluation studies for serological tests for syphilis which are conducted by the Advisory Committee of the United States Public Health Service. In 1943 our Kline test had a sensitivity rating of 78.0%—the control laboratory a rating of 65.6%. Our specificity rating in the Kline test was 100%—the control laboratory 100%. Our Wassermann, the Eagle Complement Fixation Test, had a sensitivity rating of 65.8% and a specificity rating of 100%. The control laboratory had a sensitivity rating of 73.9% and a specificity rating of 100%. It is apparent, therefore, that our serological laboratory made a satisfactory showing in this evaluation study.

We have continued our supervision of the North Carolina laboratories which have been approved or which have applied for approval for the making of serological tests for syphilis under the State Marriage Law. We have been able to send a representative of our laboratory to each of the local laboratories which have applied for certificate of approval. Our representative has inspected the quarters and equipment of these local laboratories and has attempted to appraise the training, experience and technical skill of the laboratory workers who are actually performing these serological tests. Some of the information included in a comprehensive report of this study is as given below:

Although war-time is a poor time for reform we feel that we have both an opportunity and a responsibility for improving local laboratory service. We feel that with the coming of peace we can with, patient planning, exert a helpful influence in the development of more adequate local laboratory service.

Reports from the approved laboratories for the calendar year, 1943 showed that these laboratories performed 335,332 serologic tests for syphilis; that 37,402 of these were positive or a percentage of 11.1. They examined 4,150 specimens of spinal fluid. Of the specimens

Quarters and Equipment	No. of Labs.	Condition		
		Good	Fair	Poor
Space	67	41	13	13
Light	67	48	13	6
Glassware	67	40	19	8
Centrifuge	67	51	10	6
Microscope	67	65	1	1
Darkfield Attachment	29	29		
Electrically Controlled Water Bath	45	44	1	
Shaking and Rotating Machine	24	24		
Refrigerator	44	44		
Refrigerator Facilities	18	1	10	7
Sink	62	50	8	4
Sterilizing Facilities	62	55	5	2
Cleanliness	67	33	23	11

of blood tested—22,621 were from applicants for marriage licenses; 9,978 were from expectant mothers; 50,444 were pre-employment tests. These laboratories made 26,090 microscopic examinations for gonorrhea; 9,162 gonococcus cultures were made, and a considerable number of other laboratory activities were reported. When the number of examinations made by the approved laboratories is added to the number by the State Laboratory of Hygiene, we get some large numbers; for instance, in 1943 the State Laboratory of Hygiene made 387,039 serological tests from the civilian population of North Carolina and 175,002 such examinations for Selective Service Boards,—the approved laboratories reported as previously stated, 335,332, the total serological tests reported by the combined institutions being 879,373. If no two of these specimens were taken from the same individual, it would mean that one out of every four people living in North Carolina had a serological test for syphilis in the year, 1943.

In many respects there is justification for a considerable amount of satisfaction. It indicates that North Carolina is getting better laboratory service now than it did only a few years ago. We should be able to make better progress with the coming of peace.

In "A Half Century of Public Health," the section prepared by Dr. Frederick C. Gorham contains the following statement:

"On March 29, 1871, Pasteur wrote to Duclaus:

'I have a head full of the most beautiful projects for work. The war has forced my brain to lie fallow. I am ready for new productions. Alas! Perhaps I am laboring under an illusion. In any case, I shall make the attempt. Oh! why am I not rich—a millionaire? I would say to you, to Raulin, to Gernez, to van Tiegham, etc., Come! We will transform the world by our discoveries!'

The riches of Pasteur were not counted in francs and centimes, but in ideas and inspirations. It was not mercenary reward, but Pasteur's wealth of ideas, his fruitful inspiration, his stimulating example, that aroused his students and followers to answer his summons. In the fifty short years following, the world has been transformed by their discoveries.

Although there are no Pasteurs today and most of us who have followed in the path which he trod will cast very short shadows in comparison to his, we are inspired with the same hopes and aspirations. We have the desire, at least, for greater opportunities than we have in order that we may be able to render better service.

The Story Of The Kenny Method

By BASIL O'CONNOR, President
The National Foundation for Infantile Paralysis, Inc.
120 Broadway, New York 5, N. Y.

JUST three and a half years ago—in 1940—a distinct change in our treatment of infantile paralysis was introduced, one that has since caught the public's attention because of its human drama. This was, of course, the method of treating infantile paralysis victims which was evolved by Sister Kenny, the Australian nurse.

Many have misunderstood the nature of the Kenny treatment, and have thought it a cure for infantile paralysis. That is not true, and Sister Kenny makes no such claim. There is no cure for this crippling disease. The medical profession is still in the dark as to how to prevent it. It cannot control its spread. No one yet knows by what method this virus is carried from one victim to another. In a day when we are masters of malaria, smallpox, and diphtheria—infantile paralysis is still a riddle, a mystery, a crippling menace prowling our country at will.

What Sister Kenny has contributed, however—and it is a very real contribution—is a method for treating victims already stricken by infantile paralysis; a method that in the opinion of many American doctors reduces the crippling after-effects of the disease.

There is a real interest in the history of the Kenny method in this country, and The National Foundation for Infantile Paralysis played an all-important part in evaluating this technique and in making it available to every infantile paralysis victim.

Sister Kenny went to the offices of the National Foundation one day in May, 1940, because she knew that the job of the National Foundation was to examine and study every new bit of knowledge that could possibly hasten the conquest of infantile paralysis. Present that day, were Sister Kenny, the President of the National Foundation and its Medical Director. Sister Kenny told how she had first developed her method. Thirty years

ago, as a young nurse in the Australian bush country, without medical assistance she had to care for a child stricken with infantile paralysis. Instead of immobilizing her patient's paralyzed limbs in casts or splints, she worked out a method of easing the pain and tightness in the muscles by frequent applications of heat—strips of woolen material were wrung out of steaming hot water. As the pain subsided she followed this with passive exercise until the patient himself could move his limbs. She felt that in many cases, this treatment had prevented many of the crippling after-effects of the disease.

Sister Kenny was anxious that the National Foundation subject her method to scientific check, and so was the National Foundation. A few weeks later, when the University of Minnesota asked the National Foundation to support a program to study the Kenny method, it readily made a grant to that institution to enable Sister Kenny to demonstrate her method, and to give the doctors at Minneapolis a chance to see her work. For the next six or seven months, Sister Kenny treated infantile paralysis patients in Minneapolis.

In January of 1941, the National Foundation received a preliminary report from the doctors at the University. They were strongly impressed by what they had seen. To be sure, the number of cases studied had been few—too few to justify definite conclusions, but the physicians supervising this study felt that the patients treated had made far better recoveries than was usual in their experience. They recommended further study.

There was one fact, not widely known, that made these doctors cautious in their judgment. And that was the fact that over 50 per cent of all infantile paralysis cases seemingly recover by themselves, without any special form of treatment! "How do we know," these doctors asked, "that many of

these cases Sister Kenny has treated might not have been among those that would have recovered spontaneously?" Obviously no one would answer that question, but medical science and the National Foundation had to take that factor into account.

The caution of these doctors making their first study of the Kenny method was justified on other grounds, too. They had seen many hopeful methods for treating infantile paralysis tried before—methods which failed to stand up under scientific test. Before they gave the Kenny method their full approval, they had to be sure.

That is why in 1941, the National Foundation made a second grant to the University of Minnesota to make further studies of the Kenny method. Nearly one hundred patients were treated the following year. In December of 1941 the medical men of the University made a second report. After consideration of this report, the Medical Advisory Committee of the National Foundation declared:

"It is the opinion of this committee that during the early stages of infantile paralysis the length of time during which pain and tenderness are present is greatly reduced, and contractures caused by muscle shortening during this period are prevented by the Kenny method. The general physical condition of the patient receiving this treatment," said the committee, "seems to be better than that of patients treated by some of the other methods during a comparable period."

It was on the basis of this report that The National Foundation for Infantile Paralysis felt justified in opening the throttle and going full steam ahead to make this Kenny method of treating infantile paralysis available everywhere in the land. A plan was immediately set up to instruct and train doctors, nurses and physical therapy technicians. Sister Kenny herself was to help in the teaching at the University of Minnesota.

How well this has worked was clearly demonstrated during the epidemics of 1943

when 12,401 cases were reported. The doctors of the whole nation had learned something of the work; many were intimately acquainted with it. Physical therapy technicians and nurses had been trained to do the work. From the epidemic areas of the West, the Central States and the East came a flood of requests from physicians for more technicians and more nurses to give this treatment.

Here was proof of the endorsement of the method by American medicine! Patients could be treated from coast to coast. Private physicians, clinics, hospitals and departments of health called for more skilled workers. The supply was limited by the demands placed on this country by war; yet there were enough to do a good job.

Up to the present time, a total of 900 persons have received this training at the University of Minnesota alone, and have been graduated with the approval and certification of Sister Kenny.

All of this has been tremendously costly—a cost borne entirely by the National Foundation. To date, \$107,000 has been given by the National Foundation to the University of Minnesota alone, to further the evaluation and teaching of the Kenny method. Every sum this University has ever requested has been granted in full by the National Foundation.

But the task of teaching the number of technicians needed to serve the whole country was too great for any one school. So the National Foundation opened other centers. Institutions in California, Illinois, Indiana, Georgia, Pennsylvania and New York took up the teaching of the Kenny method. In addition to the money given to the University of Minnesota, \$140,000 has been granted to the other schools. These grants were made to schools connected with or operated by medical teaching centers. Eight medical colleges and one hospital devoted solely to treating infantile paralysis and to training professional people took up the burden of making the special skills and knowledge available to all doctors, nurses and physical therapy technicians. There was no quarrel here between American med-



JERRILL LEE AND MERRILL JOE
McENTIRE

Twin sons of Mr. and Mrs. Theo. McEntire, R.F.D. 1, Old Fort, N. C. This picture was taken when the twins were eight months of age. At twenty-three months they were talking and running. Mr. and Mrs. McEntire have six normal healthy children who have been helped by The Health Bulletin, Prenatal Letters, and pamphlets on child care distributed free by the State Board of Health.

icine and new methods of alleviating suffering and crippling from infantile paralysis!

The National Foundation has spent additional money on scholarships, wool for treatment, distribution of literature, exhibits and demonstrations—a total of \$301,000!

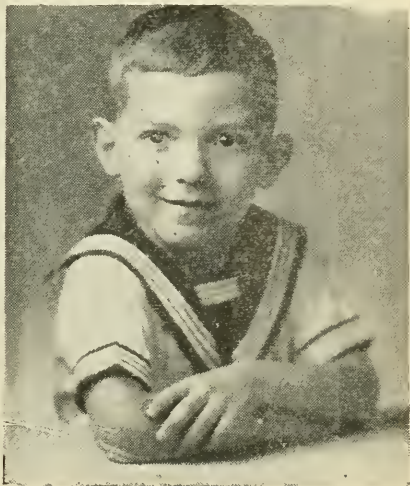
In fact—and it is one worth remembering—in the past three years the National Foundation and its Chapters have spent a total of over a half million dollars of your money for the study and teaching of the Kenny method! It is no exaggeration to state that in all the history of medicine, few new theories have ever received such generous financial support from the people of any nation.

In addition to all of the foregoing, two five-year grants have been made recently by your National Foundation: one for \$175,000 to the University of Minnesota to study the physiological problems concerning the mechan-

ism of infantile paralysis and methods of treatment; the other grant of \$150,000 was made to the University of Pennsylvania to establish a center for research and instruction in physical medicine. Both of these grants permit further evaluation and teaching of the Kenny method.

It is the dimes and dollars of the American people that have made this possible—the dimes and dollars they have contributed each year to the March of Dimes. And those dimes have done good work. Last year, the third greatest epidemic in the recorded history of the disease in the United States struck our country. Had it not been for the hundreds of doctors, nurses and technicians trained with the public's money and ready to administer the Kenny method promptly, that epidemic might have resulted in a national disaster.

It is obvious, of course, that this newer type of treatment is far more costly, in money and personnel, than the older systems of handling polio victims. Heretofore, patients were usually immobilized in splints and plaster casts and could be cared for by a small staff of doctors, nurses and technicians. The physical therapy given usually consisted of a few hours of treatment a week—and that



RALPH J. ASHLEY, JR.
Winston-Salem, N. C.

frequently was administered only late in the disease.

With the Kenny method, all that is different. Our medical men, in their own language, describe the Kenny method this way—"It is the early use of physical therapy, designed to prevent unnecessary deformities and to bring about the maximum function of such nerves and muscles as may have been spared by the disease process."

That means that each patient must have far more individual attention. Each case must have hot packs applied every hour or two for at least twelve hours of the day during the acute stages of the disease. At the same time, the passive exercise and re-education of the patient's muscles must be started. Just consider the personnel required to provide such care under epidemic conditions! Consider, too, the soaring cost of such treatment!

Progress is being made in the fight against infantile paralysis. The Kenny method definitely represents an important step forward in our treatment of this disease. But the fact that it isn't a cure and it isn't fully developed must be borne in mind.

There are some cases that can't be helped at the present time by any known method of treatment, whether it be the Kenny method or any other. These are the victims whose nerve cells have been completely destroyed by the ravages of the disease. To them, motion in some muscles has been denied forever. It is for these cases, particularly, that the research program of the National Foundation, designed to find a way to prevent the disease, must go on.

Unfortunately, no one has yet been able to find a cure for infantile paralysis. Studies are constantly being pursued along this line by the National Foundation, but so far without result. There is no known drug or serum or vaccine to combat the virus that causes the disease. But, in the meantime, both the amount and kind of palliative treatment have been improved.

How such treatment methods can be best taught and made available to the people is a

matter about which there is a difference of opinion. The establishment of a Kenny institute in Minneapolis as the only place where the Kenny method would be taught has been suggested. But, of course, it's impossible to train all the Kenny technicians we require at any one place—in Minneapolis or elsewhere. And it would be equally impossible for any one person to supervise the various centers of teaching now supported by The National Foundation for Infantile paralysis.

The ultimate aim is to make whatever is sound in the Kenny method a part of the curriculum of every medical, nursing and physical therapy school in the country—and that aim will be accomplished. No one institution can have a monopoly on the teaching of the Kenny method. While it is Sister Kenny's contribution to humanity, for humanity's sake it must be available to all.

This history of the Kenny method shows very clearly that your National Foundation stands ready to evaluate and test and make available every method of treatment that promises to loosen the grip that infantile paralysis has on our children. If, on the basis of tests made, a method is found effective, the full resources of The National Foundation for Infantile Paralysis will be thrown behind it. The half million dollars of your money spent on the Kenny method to date certainly proves that.

The National Foundation for Infantile Paralysis is your Foundation—a Foundation dedicated to one purpose and one purpose only—final and complete conquest of infantile paralysis.

Until that conquest is made, the National Foundation will carry on the most ambitious research programs every marshalled against any disease. It will also continue to provide hospitalization and medical care, including the Kenny treatment, in every community to every infantile paralysis victim who needs it. And it will continue to evaluate and aid every new method that is brought to its attention.

It is the people of America who have made all that possible!



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DAVID LEWIS RICHARDSON, JR., seven months old, son of Lt. David Lewis Richardson, Engineers, overseas; grandson of Mr. and Mrs. William H. Richardson of Raleigh, North Carolina.

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FREE HEALTH LITERATURE

The State Board of Health publishes monthly THE HEALTH BULLETIN, which will be sent free to any citizen requesting it. The Board also has available for distribution without charge special literature on the following subjects. Ask for any in which you may be interested:

Adenoids and Tonsils	German Measles	Sanitary Privies
Appendicitis	Health Education	Scabies
Cancer	Hookworm Disease	Scarlet Fever
Constipation	Infantile Paralysis	Teeth
Chickenpox	Influenza	Tuberculosis
Diabetes	Malaria	Typhoid Fever
Diphtheria	Measles	Veneral Diseases
Don't Spit Placards	Padiculosis	Vitamins
Endemic Typhus	Pellagra	Typhoid Placards
Fhes	Residential Sewage	Water Supplies
Fly Placards	Disposal Plants	Whooping Cough

SPECIAL LITERATURE ON MATERNITY AND INFANCY

The following special literature on the subjects listed below will be sent free to any citizen of the State on request to the State Board of Health, Raleigh, North Carolina.

Prenatal Care.	Baby's Daily Time Cards: Under 5 months;
Prenatal Letters (series of nine monthly letters).	5 to 6 months; 7, 8, and 9 months; 10, 11, and 12 months; 1 year to 19 months; 19 months to 2 years.
The Expectant Mother.	Diet List: 9 to 12 months; 12 to 15 months; 15 to 24 months; 2 to 3 years; 3 to 6 years.
Breast Feeding.	Instruction for North Carolina Midwives.
Infant Care. The Prevention of Infantile Diarrhea.	
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Health Is Basic To Learning*

By B. L. SMITH

Superintendent of Schools, Greensboro, N. C.

THE administration and teaching personnel of the schools of Greensboro, N. C., recognize a responsibility for the health and physical well-being of the pupils. Health is considered basic to learning and essential to successful and happy living. In order to fulfill the obligation, physical facilities have been provided and educational experiences have been devised.

Playground Space Is Ample

Such distinction as may be attributed to the health and physical education program lies in the fact that it has inconspicuously pervaded the whole educational provision and experience.

In the purchase of school sites, the board of education exercised unusual foresight in acquiring adequate playground space. Several schools have more than 50 acres of land; the senior high school has 125 acres. More than 650 acres in all have been provided for the 10,000 pupils. The larger grounds are not completely developed and utilized, but as the program is expanded and the space is needed, the land is available. The rolling terrain, the sandy, gravelly soil and the mild climate make possible outdoor activities the year round.

Safety and Sanitary Provisions

Buildings are of fire-resistant construction and equipment conforms to approved safety codes. There are adequate exits, fire towers and fire escapes. All doors open to the outside. Adequate sanitary toilet facilities and

approved drinking fountains are provided. All schools have cafeteria rooms or buildings and the larger schools are equipped with gymnasiums, auditorium-gymnasiums or playrooms.

The grounds contain courts, diamonds, grid-irons and playing spaces that are suited to the ages and interests of pupils. Apparatus on the grounds and in the gymnasiums has given way to provisions for group-play activities. Calisthenics has been supplanted by games.

All employed personnel is required to present health certificates. Janitors and maids, cafeteria workers and other designated personnel are required to obtain these certificates from the city health department. Arrangement is made to employ in each school one or more teachers or secretaries who have taken the Red Cross course in first aid. Courses in health and physical education are prerequisites for a teacher's certificate. Full-time teachers of health and physical education must have had a major in the field.

Community Agencies Cooperate

In addition to the employed staff in the schools, the cooperation of a number of community agencies is utilized, notably the city health department, which was originally sponsored by the schools, the state highway patrol, the police and fire departments, the Red Cross, the dairy council and the recreation department.

*Reprinted from The Nation's Schools.

The health department renders incomplete but general and efficient health service. The staff includes physicians, a pediatrician, a dentist, an ophthalmologist, a hygienist, a laboratory technician, nurses and others. Complete examinations are made every three years. Special examinations are made as requested in individual cases and, in general, on occasion for special purposes. Nurses and classroom teachers make daily inspections. Immunization is required against smallpox and diphtheria; typhoid inoculations are fairly general. Tuberculin tests are given and fluoroscopic examinations made.

Health Supervision Provided

Health records are cumulative. First-aid treatment is available at all times. Quarantine is exercised between rooms, as well as in individual cases. Clinics are arranged for the treatment of the children from families of low economic level. Dental examinations are made annually and partial treatment is provided. Considerable effort is exerted to have defects corrected by the parents and by private physicians and dentists. All participants must have the approval of a physician to engage in competitive sports. Cafeterias are inspected regularly as are sanitary facilities, drinking fountains, dairies, food stores, bakeries and city water.

The state highway patrol inspects school buses to see that they are in proper mechanical condition for safe travel. Drivers are examined, licensed and instructed in the safe operation of motor vehicles. The police assist with street crossings and supervise school boy patrols.

The fire department inspects buildings to obviate fire hazards and to see that extinguishers, signals and hose are operative. It also supervises timing and order of fire drills.

The dairy council helps to promote the dissemination of information on the importance of a balanced diet and the benefits of milk.

Well-Being of All Is Sought

Health instruction in the elementary grades is given by regular classroom teachers, who share with pupils their work, play and relaxa-

tion experiences throughout the day. The emphasis is upon healthful behavior. Happiness is the desideratum for all.

The junior high school program is in the hands of special teachers. Theoretical instruction is coupled with a great variety of activities. Highly competitive contests are avoided. Bathing facilities are available and their use is a part of the regular procedure.

The senior high school program continues a more advanced theoretical study and a wider variety of activities, including individual and small game sports and organized athletics. The work with girls is in the hands of women. Interschool sports for them is discouraged except for color team contests on invitational play days.

Coaches of athletic teams are regularly employed members of the high school faculty. The loss of time from school, the extent of schedules, the rules of eligibility and the handling of funds are matters that are regulated by administrative control and supervision. Physical examinations are required of all contestants at the beginning of the season and after an illness.

A Summer Program Developed

School plants are available for recreational activities for in-school and out-of-school groups. An extensive program has been developed for the summer vacation. This program is in charge of the city recreation commission of which the superintendent of schools is a member. The overwhelming majority of leaders of the program are from the faculties of the schools. School grounds and buildings afford the main facilities.

Safety is an integral part of the instructional program. Facilities are constructed so as to afford reasonable protection and an effort is made to obviate accidents. A driving school is conducted in which pupils are trained to drive safely.

Wholesome Lunches

To protect pupils from the dangers of inclement weather and the hazards of street traffic, and also to afford wholesome, well-balanced lunches and the educational and so-

cial values of eating together, cafeterias have been provided at the schools. The highest standards of sanitation are maintained. The whole program is under the immediate direction and supervision of a person trained in institutional management. All the large cafeterias are under the direction of competent managers. It is the policy of the board of education to make the cafeteria self-supporting but not profit making.

No candies or soft drinks are sold and all street vendors are prohibited by city ordinance from operating near school buildings. The health program of instruction is linked with the cafeteria service. All teachers in elementary grades eat with the children in a group. They influence the selection of food and guide their social growth and manners. Undernourished indigent children are taken care of through the use of surplus commodities furnished by the federal government, by donations from civic clubs and Parent-Teacher Associations and by a Thanksgiving offering from the children.

Teaching of Exceptional Children

It is not considered feasible to take care of children who are extremely handicapped physically and mentally. There are state institutions for these. Procedures have been devised for heterogeneous groupings to include slow learners. Provision has been made for a sight conservation class and an audiometer has been installed with a view to helping those who are deficient in hearing. Perhaps the employment of a teacher of lip reading will result. The service is under a director of the education of exceptional children.

It is our hope that all personnel will be increasingly concerned with health and physical education and increasingly well qualified to serve; that health service can be expanded; that a health and physical education coordinator can be employed; that more teachers trained in the field can be added, and that a clinic can be inaugurated for exceptional children.

The Health Of Our Negro Children

By MARTHA M. ELIOT, M.D.
Washington, D. C.

ON the campus of Tuskegee Institute, famed school for Negroes in Alabama, there stands a beautiful and dignified memorial to its founder, Booker T. Washington. On one side of this memorial are carved these words: "There is no defense or security for any of us except in the highest intelligence and development of all." In no field is this more true than it is of health.

This great Negro leader was the first sponsor of National Negro Health Week. It was he who called his people "to join in a movement which shall be known as Health Improvement Week." It began very humbly in 1915 as a campaign to demonstrate the value of cleanliness in the home and the

environment for the preservation and protection of health. Through the years it has developed into a year-round movement to produce a healthier Negro people.

It is particularly fitting that, at a time when we are engaged in a great war to secure the future of our children in a free world, the topic for Negro Health Week should be the **Health of our Negro Children**. The survival of any nation depends on its ability to secure the health of its children.

Good health is a right and a necessity for all children in the United States no matter what their race, creed, or economic status. We must make sure that each boy and girl born in our country whatever his race or parentage

has an equal opportunity for life and health.

New horizons are ahead of us in the attainment of good health for all children. Newer knowledge and surer weapons with which to combat disease offer real hope for better health for all our children.

But we cannot attain that goal without personal effort on the part of every citizen. It is a goal to be worked for, to be sought with ardent, insistent effort on the part of everyone: a goal to be won only when all of us, doctors, public health workers, community leaders, and individual citizens, are working together in a common cause—better conditions of health for all children. We can and will hold fast to every gain made; we can and will work to extend those gains until a more healthful future is secured for all children.

The only way we can raise the health standards for all children is to get clearly in mind what a child requires to be healthy and strong. It can be stated very simply. He needs to be born of healthy parents under favorable conditions. He needs a happy and affectionate family life in a home which provides adequate shelter and nutritious food for growth. He needs proper health supervision and protection against disease.

We know what services are needed in every community to protect the health of the children in that community. Briefly they are:

1. A full-time health department with a medical director; a physician trained in the care of children to be responsible for supervising the child-health program; at least 1 public health nurse for every 5,000 people—preferably for every 2,500 people; sanitary officers, and other staff as necessary for the control of communicable disease.

2. Prenatal clinics and child-health conferences for infants and pre-school children conducted regularly, at least once a month, in places convenient to all families needing the service.

3. Health supervision for every school child.

4. Immunization against smallpox and diphtheria for all children.

5. Medical and dental care available for all children.

6. Adequate hospital and clinic facilities for care of the sick.

These services are the goals for which we are striving. These services are the services we want—the ones we must have—for all our children.

We have done a great deal in the past to make the United States a better and safer place in which to be born and in which to live throughout childhood. We know what we must do to assure to every child the good health to which he is entitled. We know that these measures are relatively simple and inexpensive to put into effect and that they pay high returns in increased health and vigor for all our citizens. But although we have done a great deal, we have not done enough. For there are still preventable deaths and diseases among children, and all children have not shared equally in the gains we have made.

This is particularly true of the Negro child. His chief health handicap—and this holds for children in all minority groups—lies in the fact that he is more likely to belong to the family with low incomes and to suffer from poor housing in a less favored community or neighborhood.

Because Negro children are at a disadvantage economically, they are also at a disadvantage from the point of view of health. They have a higher sickness rate and a higher death rate than white children. A Negro baby has less chance of being born alive, the stillbirth for the Negro being twice that for the white race.

And if he arrives alive, the Negro baby does not have the same chance of surviving the first year. In every State where there were 2,500 or more Negro infants born alive from 1938 to 1940, the infant mortality rate was higher for the Negro than for the white infant. The Negro mother has less chance of having her baby safely than the white mother—the Negro maternal death rate being more than double that of the white.

This high mortality rate is reflected in a lower expectation of life. A white baby born today may expect to live 65 years; a Negro baby may expect to live only 53 years.

This is the darker side of the picture. But we can take comfort in the thought that, as serious as the picture is, it is improving. Negro infant mortality rates have been yielding to improved health conditions during recent years. The ratio of stillbirths to total live births has decreased more rapidly among the Negro than among white babies. The infant mortality rate among Negroes decreased during the period from 1915 to 1935 and continued to decrease somewhat through 1940. The rate for 1942 (64 per 1000 live births) was 10 points lower than that for 1941. The Negro maternal mortality rate also has steadily decreased, although it is still much too high and far greater than that for white women.

What is the explanation for these decreases? Undoubtedly one explanation lies in the fact that Federal grants to the States for maternal and child-welfare services under the Social Security Act have resulted in the development of such services for all children, including Negro children. Many prenatal clinics and child-health conferences have been established in counties with a concentrated Negro population. Many, many more are needed.

The great number of deaths of both mothers and infants during childbirth is caused by many factors, but inadequate medical care and the primitive methods of ignorant midwives who officiate at 90 percent of the births in many parts of the rural south are of outstanding importance. Untrained midwives attended nearly three-fourths of all Negro births in 1941.

Enough doctors will probably not be available for maternity care for rural women, either white or colored, for a number of years to come. The only practical answer for many rural areas would seem to be well-trained nurse-midwives. Progress is being made today in providing supervision for the many thousand untrained midwives that practice today in many States. This supervision is given largely by public health nurses or trained nurse-midwives.

A number of special projects on a demonstration basis in the field of Negro maternal and child health have grown out of the

Social Security program. A Negro physician on the Bureau's staff has given medical lectures to hundreds of Negro physicians in several States. He also served as medical director during the first years of operation of the Slossfield Health Center in Birmingham, Alabama—a health center staffed entirely by Negroes which serves a large proportion of the Negro population of the city. This health center is financed in large part by the Alabama State Department of Public Health with Federal funds made available through the Children's Bureau. At Tuskegee Institute more extended facilities for the training of Negro nurse-midwives have been promoted. It is hoped that in this way trained midwives can replace in time the untrained midwives and provide a better quality of care at delivery for Negro women in the rural areas of the South.

A new program of Federal grants to States, for which Congress made its first appropriation in March 1943, provides maternity and infant care for wives of enlisted servicemen in the four lowest pay grades without cost to them. By March 8, 1944, 48 States, the District of Columbia, Alaska, Puerto Rico, and Hawaii, had put into operation plans for providing this care. The program includes medical care for the mother throughout pregnancy, at delivery, and during the post partum period, and any medical care that may be needed by the baby during its first year of life.

Up to February 29, the State agencies had authorized care for more than 230,000 wives and infants of men in the armed services, and applications were being approved at the rate of approximately 35 to 40 thousand a month. The service is provided without discrimination on the basis of race, color, or creed.

The Children's Bureau also is given funds each year under the Social Security Act, for grants to State public-welfare agencies for the development of child-welfare services for the protection and care of children who are homeless, dependent, neglected, and in danger of becoming delinquent. State agencies in a number of States have developed special programs for Negro children.

There are many ways in which the low income of the Negro family affects the health of the Negro child. It affects his health through the places in which he has to live. The inadequate Negro cabin in the southern part of the country with its total lack of sanitary facilities, the "alley houses" of Washington and Baltimore and other cities, the "ex-mansions" (with emphasis on the ex) of Chicago, the crowded tenements of other large cities in the northern part of the country all represent the lowest type of home from the point of view of health. Poor housing and inadequate food are largely responsible for the high incidence of tuberculosis and rickets among Negro children.

But here, too, there are signs that promise the dawn of a better day. Under the slum-clearance and low-cost housing program of the Federal Government, as of August 31, 1943, 80,200 dwelling units had been completed and occupied and there were under contract for construction 10,700 dwelling units for Negroes.

Since the first world war much has been learned about the food needs of growing

children. But despite all of our knowledge of nutrition and the progress we have made in applying it, many children in the United States today are undernourished. Parents can do much to safeguard their children's health through proper nutrition if they know what foods are most important.

A number of States now employ public health nutritionists who have made real beginnings in an educational program designed especially to improve the nutritional level of Negro families. Many more such programs are needed.

School lunch programs represent another attempt to raise the nutritional status of children. The War Food Administration estimates that 360,000 Negro children are participating in the Federal school lunch program.

To conclude then, the health needs of Negro children can be simply stated: Healthy parents, good homes, good food, good medical care, good health supervision, good schools. Gains have been made, but much remains to be done. The struggle for better health opportunities for Negro children must go on with unabated zeal.

Book Review

"The Prevention of Deformity in Childhood"

By R. B. RANEY, M.D.

THIS book is written by one who is an authority on the preventive aspects of crippling conditions. It is written in an understanding manner so it should be most helpful as a text for the student nurse who is in the process of learning orthopedic nursing; to the private duty nurse who has an opportunity to play an important role in the prevention of deformity if the patient has a long term illness such as a heart condition. Through a knowledge of the use of adequate foot support, she can help in the prevention of foot-drop; or by the use of the firm mattress the patient may be spared some back deformity due to the "sagging mattress."

This primer should be of particular value to the public health nurse, who is doing a generalized program, for the writer includes a number of conditions which are part of her daily routine; i.e. the prevention of deformity in obstetrical paralysis by helping the parents secure immediate adequate medical care following birth injuries; also by understanding the position in which the arm should be placed. In case the physician asks the nurse to place the shoulder in abduction and external rotation, an excellent illustration of this position is given. The writer also states the importance maintaining this position during the bath of the infant. He outlines the care of the

skin to prevent irritation from the brace, which is used continuously, except during bathing.

Other points which should be of special interest to the public health nurse are the prevention of Rickets through lack of vitamin D in the diet as well as inadequate amount of sunshine.

In addition to the P. H. Nurse doing a generalized service, there are a number of nurses connected with private agencies and industrial plants who are giving care in the home or in the plant. They have excellent opportunities to use this primer as a reference in relation to the preventive aspects. The nurse doing a morbidity service deals with the chronic as well as the acute; she takes care of newborn baby, she follows fractured cases, she dresses burns, so this primer would be most useful as a guide in these services.

Then we have the case worker, who comes in contact with so many families. Through this book she can develop a better understanding of recognizing the abnormal, reporting and aiding in early medical care.

The importance of children with infantile paralysis having adequate care during the acute stage of the disease is emphasized. Every worker needs to be familiar with the early symptoms of this disease in order that she may encourage early medical care: then after the diagnosis is made, she also has a definite responsibility in helping the family carry out the physician's instructions in regard to isolation, position of patient, nutrition, and routine care. The information re: this disease is clearly outlined.

The explanation of ways in which faulty posture may be prevented is excellent. This

should be most valuable to teachers and parents as well as nurses who deal with pre-school and school children. How many times have we heard the words, "Johnny, hold your shoulders up!" The writer suggests that the child with faulty posture may not be able to obey these orders because of some definite reason. Therefore, he should "first receive a thorough pediatric examination. Any contributing factor such as malnutrition should be treated." The relation of defective hearing or vision to posture is significant. When these steps have been taken, it will be easier to teach the child the principles of good posture.

I was particularly impressed with the paragraph on the after care of burns, as they probably take third place among our crippling problems in North Carolina, as far as length of hospitalization is concerned. Efforts are being made in our department to reduce the number of burned children in our state. While we are attempting such a program, we can help in preventing contractions of burned cases. The primer offers excellent suggestions in the use of splints and daily exercises for prevention of these contractions. I also believe that owing to the simple language that many mothers may also find this information most helpful.

The illustrations throughout the book are excellent, for example, the prevention of wrist-drop on page 56.

As Dr. Raney points out in his introductory remarks, the trend today is prevention. It is my belief that the writer offers us a challenge in the prevention of deformity through information which is clearly and concisely written.—Ruth Council, R.N.

A Letter

Lt. Annie Anderson
A. N. C. N-727188
361st. Station Hospital
Attached to 363rd Station Hosp.

A. P. O. 503, Unit 1, c/o P.M.
San Francisco, Calif.
In the jungles of New Guinea
February 18, 44

Dr. Robert F. Young
Editor of News Letters
State Board of Health
Raleigh, N. C.
Dear Dr. Young:

To day I received News Letter No. 4 the September and October '43 issue. It took quite some time for it to reach me here in the jungles. The entire letter was of great interest to me as no one from the Public Health Sections has written me anything concerning the activities of our Public Health Program in the Old Home State.

We who have been in public health before entering the Armed Forces, have had great experiences in phases of public health work during war time in other countries. We in the tropical countries have had experience with numerous tropical diseases. The medical organizations of the Armed Forces are doing a wonderful job and especially in the Southwest Pacific. I for one wouldn't have missed all this for anything. I feel sure I've learned many things that will be of great value to me if I'm fortunate to do public health work

when I am released from the Army.

Jungle life is not too bad even tho' the climate is very hard on us. We never think of ourselves as we are so anxious for these men who are doing such a wonderful job for all of us. We do see plenty horrors of the war but we nurses put up a good fight to keep the boys in good spirits. We are all so very anxious to keep moving up to the front with the boys. We don't stay too far from them. Before I return to the States I hope to give a report on the health conditions of Japan.

Everyone is so very excited over the news today from the front. Am sure we'll reach our goal before too long.

Give my regards to all and I'll look forward to the next news letter.

Sincerely,

Annie Anderson

P.S. Especially remember me to Miss Patton.

Our unit has been changed from 33rd Surgical to 361st Station Hospital. Our men have moved on to prepare for our set-up further on towards the front lines.

"You Can't Have Dat Baby"

A VERY literal interpretation of the recently enacted law requiring all expectant mothers to have a blood test was brought to light in the following story recounted by a country doctor recently:

"About midnight I was awakened by a pounding on my door. Hurriedly I answered the urgent knocking, to find a frightened colored man at my door, begging me to bring my 'blood tester' out to the car. On investigation I found the man's wife in the dilapidated car obviously in labor. The midwife had informed her that 'she couldn't have dat baby without a blood test first.'

"They had come ten miles over a 'wash board' road to get it. I then quickly took the specimen, examined the patient and bade the husband to go with caution, as I believed there was time. I went back to bed praying that the patient would make it home."

The midwife saw her duty "and done it" but very belatedly. The idea back of the law is to get expectant mothers to have blood tests early in pregnancy so they may be treated, if they have a venereal disease, and bear healthy children. But at least the midwife adhered to the letter of the law.

*Reprinted from Georgia's Health.

June Classes For Nurses

By STELLA GOOSTRAY, Chairman
National Nursing Council for War Service

MANY schools of nursing throughout the country are planning June classes this year. Some schools already have increased enrollments in 1942 and 1943 by taking June classes.

June classes are a practical solution to the wartime problem of increasing nurse power as quickly as possible.

Those schools which have not yet added a June class to their program will find that there are benefits as well as difficulties.

Wartime Advantages of a June Class to School and Hospital

1. Puts limited teaching facilities to maximum usefulness.
2. Helps stabilize the nursing service. June students are ready to make some contribution when graduating September class leaves school.
3. Provides graduate nurses three months earlier than if students were admitted in September.
4. A larger group of desirable applicants is available from high school classes, good students with enthusiasm at high peak, and study habits firmly fixed.
5. Prevents loss of potential students to other fields immediately available. This is an important factor in the war emergency.
6. Encourages year-round vacation planning, to provide more uniform staffing of clinical services and teaching programs.
7. Prevents possible waste due to unused educational plant for a portion of the year.
8. Offers same Federal aid as is received for other classes.

Planning for June Classes

By planning now you can eliminate many difficulties. These suggestions are based on actual experience:

1. Consider the possibility of cooperating with other schools of nursing in a central teaching plan for the pre-clinical period.
2. Consider using facilities of a college, for

the summer at least, to ease housing problem and reduce teaching load of regular instructors.

3. Increase housing facilities for living and instruction by using previous suggestions to meet housing needs.

4. Increase clinical facilities by providing affiliations if inadequate facilities in one or two required clinical services prevent larger enrollments. (These affiliations allow more nursing service on heaviest clinical service.)

5. Expand resources of qualified supervisory and instructional staff:—

- a. Keep your limited teaching faculty for essential work. Relegate routine duties to others who can carry them. (For example, assign to a secretary the keeping of routine records, ordering of supplies, etc. Provide auxiliary workers to carry on non-nursing activities.)

- b. Supplement your faculty with qualified part-time teachers and supervisors. (Locate well-qualified graduate nurses in community who, because of other responsibilities, cannot accept full-time work. They can carry teaching and supervisory responsibilities on a part-time basis, correct papers at home and give other kinds of assistance.)

- c. Examine educational resources of community to purchase courses which can be taught by non-nurse personnel. (This can be accomplished either at another institution or by bringing the instructor to your school.)

- d. Seek services of a university offering approved programs of studies to bring such programs to you, if necessary through extramural courses and institutes for graduate nurses.

- e. Seek services of such universities to provide essential portions of program in more concentrated periods of study or through workshop courses, to prepare instructional and supervisory personnel.

f. Encourage as many of your promising graduates as possible to enroll for full-time study in preparation for such essential supervisory or teaching positions, and to return to your school upon completion of the period of study. (The shortage of this type of personnel will be more acute next year. Long-range planning is essential.)

g. Encourage those who lack adequate preparation, although employed in these essential positions, to enroll for part-time study in a university.

6. Notify your State and Local Council for

War Service of your June admission date:

We have not passed the danger level of the nurse shortage—the need is still acute. In order to meet this need, it is essential that every school of nursing add a June class to its program this year. Recruitment activities have shown that you should not have difficulty in filling a June class.

We are ready to assist you in every way possible with problems that develop in this emergency. Won't you please call upon us for any help you may feel you need?

Summer Session

"The Public Health Nurse In a Tuberculosis Control Program"
University of North Carolina, Chapel Hill, N. C.

TUBERCULOSIS nursing, the subject selected for the 1944 summer session is based on a survey of health departments made last fall by the Department of Public Health Nursing of the School of Public Health.

With the assistance of the U. S. Public

Health Service and the North Carolina State Board of Health the Department of Public Health Nursing is offering a 15 days' concentrated course, June 12 to June 28 inclusive. Registration will be June 11. This is a 52 hour course and carries four and one-half quarter hours of credit.

Since tuberculosis is a pressing problem of the South, nurse and other public health workers are cognizant of their need for scientific knowledge and the newer methods of tuberculosis control.

Mrs. Louise Lincoln, Tuberculosis Nursing consultant of the National Organization for Public Health Nursing, who has a rich background of experience in this field, will be the guest instructor.

Scholarships are available through State health departments for those employed by official agencies. Additional scholarships from Bolton Act funds and tuberculosis associations are available to nurses with non-official agencies.

For further information write to:

Ruth W. Hay
Professor of Public Health Nursing
Department of Public Health Nursing
School of Public Health
University of North Carolina
Chapel Hill, North Carolina



Louise Lynne Canady, daughter of Mr. and Mrs. J. S. Canady. Mr. Canady is a District Sanitarian with the North Carolina State Board of Health.

Can Your Child Hear Well?*

WHAT would you think of a child who seemed to pay no attention when you called him? What would you do with a child who seemed inattentive at school and finally had to repeat his grade? Such a situation occurs daily in many households and schools. It may jeopardize the happiness of the child. Before it can be corrected it is necessary to determine the cause of the inattentiveness. Impairment of hearing is an important cause which must be considered and investigated. With less than normal hearing the child is handicapped in his school, in his play and in his contacts with his family and friends. His hearing is important to him. The proper functioning of his ears plays **just as important** a part as his eyes, teeth, heart and other parts of his body.

Some Causes of Defective Hearing

Most cases of loss of hearing are related to respiratory infections such as colds, sore throats, scarlet fever and pneumonia, for in such conditions the lining of the inner ear canal may become infected. It is, therefore, important to take those precautions which will prevent spread of respiratory infections and to care for the child properly when such infections develop. Early medical care will help to avoid defective hearing and your physician's advice should be followed. The use of sulfa drugs has constantly decreased the ear complications of respiratory infections. Lancing of the ear is a procedure which, rather than injuring the eardrum or the hearing, will help the condition by release of the pus. Removal of enlarged or infected adenoids may be necessary so that there will be a clean passage of air from the nose and mouth through to the eardrum by way of the inner ear canal.

Defective hearing may be the result of conditions that can be simply and easily corrected. Often dried, hard wax blocks the outer canal. Foreign objects, such as beans, cotton, etc., are sometimes found to block

the ear canal. Removal of such objects will immediately restore hearing to normal.

There are other causes of impaired hearing that must be investigated but, though serious, they are responsible for a smaller percentage of the total number of children with defective hearing.

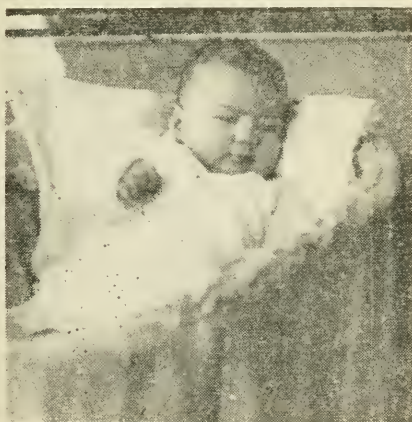
Practical Suggestions

How can each child be protected, as far as is possible, from acquiring defective hearing?

First: By good daily health hygiene which every parent should know and which every child should be taught at home and at school.

Second: By obtaining medical attention early in cases of respiratory infections and whenever symptoms are referable to the ears. Most cases of deafness occur in childhood. Newer and improved methods of treatment of infections and of nose and throat conditions will reduce the number of hard of hearing children and the number of deaf children.

Third: By having his hearing tested at regular intervals at the school. By means of the



Nancy Bennett Barnes, age 4½ months, daughter of Mr. and Mrs. H. W. Barnes, Jr., Wake Forest, N. C. Mr. Barnes is a member of the staff of the North Carolina State Laboratory of Hygiene.

audiometer, a group of as many as forty school children may be tested at the same time. A retest is made of those children who show some loss of hearing on the first test. The parents are then notified that the child has defective hearing.

Fourth: By consulting a physician and any specialist whom he may designate should the hearing test denote any loss of hearing in one or both ears. The type of treatment will vary from child to child and may be required over periods of time. It is necessary that instructions be carried out as ordered by the physician.

And last: By seeing to it that the school program is suitably adjusted for the child

who is hard of hearing. Certain seating arrangements can be made in order that he may hear the teacher and his classmates. Lip reading instruction is necessary for some children. If a hearing aid is indicated, the child must be convinced of the necessity for using it.

A person with impaired hearing is faced with a similar situation as one who has defective vision. Corrective treatment should be instituted so early in the course of the defect that the life of that person will not become warped because of his handicap.

From Weekly Health Bulletin Connecticut
State Department of Health.

Child Health Day—1944

By The President of the United States of America:

A Proclamation

WHEREAS, the Congress by joint resolution of May 18, 1928 (45Stat.617), has authorized and requested the President of the United State to issue annually a proclamation setting apart May 1 as Child Health Day:

NOW, THEREFORE, I FRANKLIN D. ROOSEVELT, President of the United States of America, in recognition of the importance to every child and young person of a healthy body and a sturdy spirit, do hereby designate May 1 of this year as Child Health Day.

And I invite our boys and girls to use this occasion as a time to gather with parents, teachers, and other citizens, or by themselves, in schools, churches, and community centers, and to consider how we can make our home and community life contribute in full measure to the building of buoyant health and valiant spirit in all our boys and girls.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the United States of America to be affixed.

DONE at the City of Washington this seventeenth day of March in the year of our Lord nineteen hundred and forty-four and of the Independence of the United States of America the one hundred and sixty-eighth.

By the President:
CORDELL HULL,
Secretary of State.

LIVE BIRTHS, INFANT MORTALITY AND MATERNAL MORTALITY UNITED STATES, 1942

STATE	Live Births		Infant Mortality (Death in the 1st Year of Life)		Maternal Mortality	
	Number	Rate Per Thousand Population	Number	Rate Per Thousand Live Births	Number	Rate Per Thousand Live Births
United States	2,807,445	20.9	113,418	40.4	7,267	2.6
Alabama	70,784	24.1	3,607	51.0	235	3.3
Arizona	13,578	26.0	1,005	74.0	49	3.9
Arkansas	42,525	21.2	1,646	38.7	158	3.7
California	151,993	20.1	5,373	35.4	306	2.0
Colorado	23,603	21.3	1,171	49.6	44	1.9
Connecticut	36,427	20.5	1,073	29.5	67	1.8
Delaware	5,662	20.3	265	46.8	9	1.6
District of Columbia	21,532	25.1	948	44.0	41	2.7
Florida	40,902	19.6	1,965	48.0	166	4.1
Georgia	73,050	22.8	3,598	49.3	300	4.1
Idaho	11,647	24.2	397	34.1	30	2.6
Illinois	154,068	19.1	5,064	32.9	326	2.1
Indiana	74,120	21.2	2,726	36.8	178	2.4
Iowa	49,246	20.1	1,668	33.9	94	1.9
Kansas	33,314	19.1	1,178	35.4	88	2.6
Kentucky	66,300	23.7	3,199	48.3	178	2.7
Louisiana	58,157	22.8	2,819	48.5	201	3.5
Maine	17,437	21.0	646	37.0	38	2.1
Maryland	40,801	20.9	1,853	45.4	88	2.0
Massachusetts	83,719	19.3	2,613	31.2	174	2.1
Michigan	123,816	22.3	4,593	37.1	257	2.1
Minnesota	58,901	22.0	1,759	29.9	96	1.6
Mississippi	56,329	25.4	2,684	47.6	249	4.4
Missouri	72,116	18.9	2,798	38.8	182	2.6
Montana	11,628	22.3	402	34.6	26	2.2
Nebraska	23,954	19.2	782	32.6	45	1.9
Nevada	2,750	20.6	149	54.2	2	0.7
New Hampshire	9,576	19.7	322	33.6	11	1.2
New Jersey	79,992	18.7	2,517	31.5	162	2.0
New Mexico	14,225	27.1	1,290	90.7	68	4.8
New York	246,084	19.0	7,824	31.8	545	2.2
North Carolina	89,880	25.2	4,424	49.2	307	3.4
North Dakota	13,465	22.7	459	34.1	29	2.2
Ohio	144,447	20.8	5,343	37.0	300	2.1
Oklahoma	45,658	20.6	1,859	40.7	142	3.1
Oregon	22,754	21.2	688	30.2	38	1.7
Pennsylvania	197,870	20.3	7,430	37.5	530	2.7
Rhode Island	14,101	19.0	557	39.5	26	1.8
South Carolina	48,530	24.1	2,846	58.6	260	5.3
South Dakota	12,024	20.4	440	36.6	25	2.0
Tennessee	66,312	22.5	3,149	47.5	197	3.0
Texas	144,033	21.6	7,837	54.4	440	3.0
Utah	16,067	28.4	535	33.3	27	1.7
Vermont	6,881	19.7	289	42.0	15	2.1
Virginia	65,008	21.8	3,561	54.8	220	3.2
Washington	38,871	20.9	1,288	33.1	68	1.7
West Virginia	43,876	23.6	2,495	56.9	103	2.3
Wisconsin	64,005	20.4	2,037	31.8	114	1.8
Wyoming	5,427	21.9	247	45.5	13	2.3

TOTAL NUMBER OF BIRTHS AND DEATHS UNDER ONE YEAR OF AGE (EXCLUSIVE OF STILLBIRTHS) ALSO MATERNAL DEATHS IN EACH COUNTY, WITH RATE PER THOUSAND LIVE BIRTHS, 1943

	Infant Mortality Place of Death		Maternal Mortality Place of Death		Total Births By Place Of Birth		Infant Mortality Place of Death		Maternal Mortality Place of Death		Total Births By Place Of Birth
	No.	Rate	No.	Rate	No.		No.	Rate	No.	Rate	No.
Entire State	4,403	46.2	309	3.2	95,131	Johnston	49	31.2	2	1.3	1,567
Alamance	53	36.7	3	2.1	1,445	Jones	13	60.5	1	4.6	215
Alexander	6	24.2			247	Lee	29	32.6	2	3.2	613
Alleghany					125	Lenoir	69	51.1	10	7.4	1,350
Anson	23	33.8	5	7.3	680	Lincoln	34	48.5	3	4.2	701
Ashe	30	56.3	1	1.9	532	McDowell	30	49.5	1	1.6	606
Avery	29	60.0			483	Macon	17	34.4			493
Beaufort	74	68.0	9	8.2	1,088	Madison	17	42.4	2	5.0	401
Bertie	53	61.1	4	4.6	867	Martin	17	22.8			744
Bladen	42	52.6	2	2.5	798	Mecklenburg	204	50.5	11	2.7	4,037
Brunswick	16	40.4	1	2.5	396	Mitchell	13	27.4			473
Buncombe	120	46.9	7	2.7	2,557	Montgomery	14	36.1			387
Burke	26	29.6	2	2.2	879	Moore	28	36.5	3	3.9	767
Cabarrus	62	43.6	3	2.1	1,423	Nash	88	54.1	16	9.8	1,624
Caldwell	47	39.9	2	1.7	1,177	New Hanover	157	55.1	11	3.8	2,845
Camden	5	46.2	1	9.2	108	Northampton	22	34.8			633
Carteret	21	38.3	1	1.8	548	Onslow	42	58.0	3	4.1	724
Caswell	19	43.7			435	Orange	9	31.4			286
Catawba	65	51.9	4	3.2	1,252	Pamlico	14	68.0	1	4.8	206
Chatham	17	35.2	2	4.1	482	Pasquotank	35	46.4	5	6.6	754
Cherokee	39	63.3			616	Pender	17	37.1	1	2.2	458
Chowan	11	42.8			257	Perquimans	5	24.5			204
Clay	10	62.9			159	Person	16	25.0	1	1.5	638
Cleveland	50	31.4	6	3.8	1,592	Pitt	60	39.6	6	4.0	1,512
Columbus	77	64.8	4	3.3	1,288	Polk	17	60.7			280
Craven	60	69.1	9	10.3	868	Randolph	29	26.6	3	2.8	1,087
Cumberland	120	51.1	5	2.1	2,348	Richmond	51	55.2	4	4.3	923
Currituck	6	57.1			105	Robeson	165	64.7	12	4.7	2,550
Dare	4	40.4	3	30.3	99	Rockingham	65	52.3	4	3.2	1,242
Davidson	55	47.0	1	0.9	1,171	Rowan	58	42.5	4	2.9	1,364
Davie	11	47.6			231	Rutherford	34	31.5	6	5.5	1,078
Duplin	39	42.5	1	1.1	917	Sampson	46	37.6			1,221
Durham	155	53.6	15	5.2	2,890	Scotland	38	54.6	3	4.3	695
Edgecombe	50	37.0	7	5.2	1,352	Stanky	45	49.1	1	1.1	915
Forsyth	141	44.1	12	3.8	3,193	Stokes	11	25.1	1	2.2	439
Franklin	34	40.3	2	2.3	843	Surry	69	50.9	2	1.4	1,356
Gaston	103	47.1	9	4.1	2,185	Swain	15	36.0	2	4.8	417
Gates	20	79.6			251	Transylvania	20	52.8			379
Graham	8	27.9			287	Tyrrell	7	33.8	1	4.8	207
Granville	26	36.0	2	2.8	721	Union	43	37.8	8	7.9	1,137
Greene	31	62.2	1	2.0	498	Vance	44	52.0	2	2.3	846
Guilford	150	42.1	10	2.8	3,556	Wake	114	42.6	9	3.3	2,761
Halifax	54	33.9	3	1.9	1,593	Warren	32	49.8			643
Harnett	59	41.9	6	4.2	1,407	Washington	24	80.0			300
Haywood	39	44.8			871	Watauga	11	25.9			425
Henderson	25	41.0	1	1.6	609	Wayne	80	58.2	10	7.2	1,374
Hertford	19	47.7	1	2.5	398	Wilkes	58	56.9	2	2.0	1,019
Hoke	27	67.8			398	Wilson	80	54.2	4	2.7	1,474
Hyde	7	58.8			119	Yadkin	10	46.5			215
Iredell	69	47.2	5	3.4	1,460	Yancey	13	35.3			368
Jackson	27	58.1	2	4.3	464						

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No. 6



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Health Bulletin



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CARL V. REYNOLDS, M.D., State Health Officer

JOHN H. HAMILTON, M.D., Acting Editor

* "The Doctor's Dilemma" Or Medical Ethics In Peace And War¹

By PROFESSOR EDWIN G. CONKLIN

Professor Emeritus, Princeton University,
President of the American Philosophical Society

SOME thirty years ago George Bernard Shaw, the famous English author and playwright, published a play entitled "The Doctor's Dilemma," which, like Molière's play, "Le Médecin malgré lui," has had a long and successful run on the stage. As in most of Shaw's published plays there is here a preface as long as the play itself in which the author condemns in wild but witty phrases current social conventions, and advocates Shavian Socialism as a cure-all. In "The Doctor's Dilemma" his unreal and emotional attack on medicine and science in general has just enough of truth in it to make it take with the general public. He denounces current medical ethics, pours contempt on the conscience of doctors, their assumed infallibility, their mercenary motives, their craze for surgical operations. He declares that doctors are not scientists, but pill dispensers and saw-bones; he denounces vivisection, and goes so far as to declare that bacteriology is a superstition, vaccination a craze, inoculations a public peril, and that doctors in general are animated with primitive savage and cruel motives. Finally the only remedy for this sad state of affairs is the "social solution" or the socialization of medicine.

The public, who see only the play on the stage and do not read the preface of the printed book, miss much of this diatribe, but

they see Dr. Ridgeon of the play and his apprentice acting the part of Satan in the tangled human relations of greed vs. generosity, lust vs. love and murder vs. mercy.

My purpose in calling attention on this occasion to this and other absurd misrepresentations and exaggerations of the lack of ethics on the part of medical men is to contrast the high level of genuine medical ethics with the low level of social ethics in general. It has been popular for a long time in stage plays, such as "Le Médecin malgré lui," "The man who married a dumb wife," and many others, to poke fun at the pretensions and foibles of doctors and to shower contempt on their so-called ethics, but in reality the ethics of the medical profession in general is far and away higher and more ideal than the ethics of society as a whole, and it is certainly more realistic and at the same time more idealistic than that of any other profession, unless it be that of the minister of religion. From the beginnings of Greek medicine in the fifth century B.C. down to modern times the "Hippocratic Oath," named after Hippocrates, "The Father of Medicine," was taken by all persons entering upon the practice of medicine. This oath, in translation, reads in part:

¹ Address at the graduation exercises in medicine, University of Pennsylvania, December 22, 1943.

*Reprinted from SCIENCE by permission.

I swear by Apollo physician, and by Asklepius god of healing, and by all the gods and goddesses:

To regard my teachers as equal to my parents.
To help the sick according to my ability and judgement, but never to injure or wrong them.

Not to give poison to any one, nor to cause abortion, but in purity and holiness to guard my life and art.

Into whatsoever house I enter I will do so to help the sick, keeping myself free from intentional wrong-doing and harm.

Whatsoever in the course of practice I see or hear that ought never to be published abroad, I will not divulge.

Now if I keep this oath and break it not may I enjoy honor in my life and art among all men for all time;

But if I transgress and foreswear myself may the opposite befall me.

Here is certainly a highly ethical professional code, and although candidates in medicine may not now be required to take this "Oath of Hippocrates," the profession as a whole is pledged to save life and to ease pain wherever this is possible, whether among friends or foes. The saving of life, like the saving of souls, is so much more important and vital than the saving of property or of social pride or of class and national prestige, that violations of humanitarian ethics on the part of physicians or ministers of religion are regarded as more reprehensible than in business or law or statecraft. The profession of medicine, like that of religion is a humanitarian and holy calling and its ethical code is correspondingly high. These humanitarian professions point the way to better social and moral relations in all phases of society in the world to come after this great crisis in human history.

The contrast between the broad humanism of medicine and "the inhumanity of man to man" in many other social relations is most striking in times of war or preparation for war when the ethics of conflict justifies the wholesale slaughter of enemies and the saving

and protection of friends only. This great contrast was nobly stated by Louis Pasteur, whom the French people have voted the greatest of Frenchmen, greater even than Napoleon, and of whom Sir William Osler, once professor of medicine in this university, said, "He was the most perfect man who ever entered the kingdom of science." Pasteur said in the concluding paragraph of his oration at the dedication of the Pasteur Institute in Paris on November 14, 1888:

Two contrary laws seem to be wrestling with each other nowadays; the one a law of blood and death, ever imagining new means of destruction and forcing nations to be constantly ready for the battle field—the other a law of peace, work and health ever evolving new means of delivering man from the scourges which beset him. The one seeks violent conquests, the other the relief of humanity, The latter places one human life above any victory; while the former would sacrifice hundreds and thousands of lives to the ambition of one. The law of which we are the instruments seeks, even in the midst of conflict, to cure the sanguinary ills of the law of war; the treatment inspired by our antiseptic methods may preserve thousands of soldiers. Which of these two laws will ultimately prevail, God alone knows. But we may assert that French Science will have tried, by obeying the law of Humanity, to extend the frontiers of Life.

The law of humanity vs. the law of the jungle, the law of peace vs. the law of war, the law of health vs. the law of disease, the law of life vs. the law of death—there are no greater contrasts than these in all nature and in all human affairs! In all these opposing laws, ideals and goals, medicine is always on the side of humanity and the angels. Even in the midst of wars of the utmost destruction and even of wholesale extermination of armies, cities and nations, medicine has not heretofore been employed to destroy life but only to save it. There have been proposals to spread epidemics of diseases, to shower enemy armies and peoples with pathogenic bacteria and viruses, to poison food and water supplies,

but none of these have ever been put into practice on a large scale. No doubt this is in large part due to the fact that epidemics are too likely to recoil on those who attempt to spread them, but it is also due to the fact that biology is the science of life rather than of death, and that medicine is by its very nature humanitarian rather than the opposite.

And yet military medicine is one of the very potent factors in modern wars, but it is always employed to save life rather than to destroy it. To be sure it is employed chiefly in saving the lives of friends rather than of enemies, but nowhere is the contrast greater between the humanitarianism of medicine and the inhumanity of war than in the medical and surgical treatment of wounded and helpless friends and foes.

This terrible conflict between the ethics of war and the ethics of medicine is especially confusing in totalitarian war, when whole nations, men and women and boys and girls are called upon to lend all possible aid and to give their very lives for the aims and ideals of the warring nations. Medical men have not been slow to take a leading part in this conflict. Everywhere they have given their utmost services for the success of the ideals which are at stake. The medical units which have gone out from this university have rendered most valuable services in many parts of the world; their members have labored and suffered for the cause which they represent. Those who have remained nearer home have labored with equal enthusiasm for the success of these ideals. Indeed this is a war of ideals rather than of nations, and nothing is more worth fighting for and dying for than our highest ideals. But now and always medical men recognize that above all ideals of merely national patriotism and prestige are the ideals of humanity. And so we find medical men laboring to save life and to ease suffering whether among friends or foes, thus giving practical expression to the ideal that "above all nations is humanity."

This war of ideals will be won by the better rather than by the worse, for humanism is more potent than nationalism; truth and

justice and liberty more enduring than falsehood, injustice and slavery; love and peace more universally demanded than hate and war. The ethics of medicine is thus in a peculiarly favorable position to influence the peace and the state of society after the war, for if this war is not to be fought and won in vain, the ideals of humanity must prevail in shaping the peace and the world to follow.

The world needs more statesmen and lawyers and educators and public leaders with the realism and idealism of scientific medicine. Too long have our social leaders treated the ills of society as savage medicine men, witch doctors, magicians and plain fakirs once treated the diseases of the body, trying to charm away the symptoms rather than to remove the causes of diseases. The disorders and diseases of society have natural causes and these causes must be controlled if social health is to be restored. Wars and social revolutions are man-made and they can be man-cured. May the spirit and methods of modern medicine guide our national leaders in treating this sickness of society, and may the humanitarian ethics of medicine grow and expand in all human relations!

The current discussions concerning the relative merits of socialized medicine as contrasted with individual or private practice is not so much a question of aims and ideals as of means and methods. The aims and ideals of the medical profession are now and have always been essentially altruistic and humanitarian, but there are quite naturally differences of opinion as to the best methods of putting these ideals into practice. The real question is how the advances of medical science can be made most widely available to those who need them. There is no doubt that large numbers of people now suffer and die for lack of proper medical attention. How can this sad condition be relieved most satisfactorily? For several centuries western civilization has recognized the humane duty to care for the sick, whether they are poor or rich. Hospitals have been established for all classes and conditions of men at first by private charity and more recently by public taxation. Health and sani-

tation are now recognized as of such vital concern to society that they have been cared for by public means if private provisions have been insufficient or lacking, but the need of additional medical services is still very great. Society in general now realizes that the health of the people is as important as their education. Indeed in respect to the welfare of a nation medicine and education stand on essentially similar ground, both must be provided for, either by private or by public means.

Education was formerly a private and individual concern. Those who could not find means to attend private schools were compelled to remain unschooled. Then came the free school system, supported by general taxation, for all who were unable to attend private schools, or who preferred the public schools. Finally came universal compulsory attendance on schools, whether public or private. There are certain advantages of private schools over public ones. Pupils can usually have more individual attention from their teachers, schools can be chosen which are better suited to the individual peculiarities of pupils, the individuality of both pupils and teachers can be better safeguarded in private schools than in public ones. On the other hand, there are certain advantages in public schools, apart from their being available to all the people, for they place especial emphasis on training for the duties of citizenship and for the democratic way of life.

Similar conditions are found in the private as compared with the public services of medicine, and for the present, in both education and medicine, there is room and need for both private and public systems. But there are strong currents at present making for the greater socialization of both education and medicine. The Russian social revolution has affected all nations, and now this world-war for democracy and against autocracy and special privilege is likely to affect both education and medicine in a new world order after the war. We may expect that men and women who have served and suffered for the ideals of democracy will not readily aban-

don those ideals when they return to civil life.

Our leaders have assured us that we are fighting for the four freedoms—freedom of religion and of speech, and freedom from want and from fear. Freedom from want means not only from want of food, clothing, shelter for all, but also freedom from the want of medical services for all who need them. Freedom from fear not only from fear of foreign aggression, but also from fear of poverty, sickness and helplessness. Through many centuries and in many countries this struggle for freedom has been going on and much progress has been made. The present world crisis is perhaps the greatest as it is certainly the most wide-spread of all the battles for freedom.

In the matter of freedom from the fear of many epidemics, such as smallpox, the black death, yellow fever, diphtheria, typhoid, etc., medical science has largely conquered helplessness and irrational fear. Today fears of cancer, poliomyelitis, heart disease are wide-spread, but when their causes are more fully and generally known irrational fears will be relieved, even if their prevention and cure have not been solved. For example, in the epidemic of infantile paralysis in 1916 many towns and villages established shot-gun quarantine against all transportation of persons under sixteen years of age. In the 1890's similar quarantines were set up against all persons coming from yellow fever districts. Medical science has in large part removed such irrational fears even if it has not established unfailing cures of these diseases or means of their prevention. We fear most those things which are mysterious, "the pestilence that walketh in darkness," the causes of which are unknown.

But the want and need of medical attention and skill on the part of the population in general is more important than their relief from fears. The enormous amount of preventable sickness and incapacity for useful work is one of the greatest if not the very greatest of all social problems. This problem must be attacked realistically. In addition to private practice, supplemented by public hos-

pitals and clinics, there must be increased facilities for taking the results of medical science to those who need them most, and if this is not or can not be done by the age-old method of private practice it will necessarily be done by some system of public or socialized medicine. For universal medical service is a social necessity and can not be indefinitely postponed.

I congratulate you who are to-day admitted into the ranks of this honorable profession. May you bring to it the skill and resources of modern science and the altruism and idealism which have made medicine a humanitarian profession and not merely a business or trade.

Bathing Places

By E. C. HUBBARD

Principal Sanitary Engineer
Division of Sanitary Engineering
North Carolina State Board of Health

THE old swimming hole is one of those revered traditions of the immediate past, alluring in retrospect and vaunted in story. To push aside that curtain of tradition surrounding the boyhood swimming hole and to look with frankness upon the dangers connected therewith seem a shame, but, perhaps, like the old gray mare, "she just ain't what she used to be."

Present day living has greatly increased the public health hazards surrounding the old stream where the gang used to have such grand summer sport. The increase in population and the migration of folk into the resort areas have brought about an ever increasing potential possibility of contamination to our lakes and streams. The practice of municipalities in disposing of the raw or only partially treated sewage by discharging it into the most convenient stream or river, only recently curbed to any degree, has ruined many former swimming holes. Industrial wastes have also added their bit to the possible dangers of safe outdoor bathing places. What may have been a perfectly safe swimming hole in "the good old days" may today be a serious menace to health. The increase in population with the passing years, the coming of the automobile which provides greater mobility of peoples, and the accompanying disappearance of rural isolation if it ever existed, mark the advance

of civilization; however, they also mark a possible menace of polluted surface water.

North Carolina is especially fortunate in having a wide variety of available swimming opportunities. In fact, the various inland lakes, the beautiful rivers and streams in the western part of the state, the hundreds of miles of shore line along the Atlantic Ocean, and the goodly number of artificial swimming pools are a mecca for thousands of summer visitors from all parts of the country. With the coming of summer, swimming ranks with our most popular sports and is considered a most healthful recreation if done in clean waters. It is of paramount importance, then, that the health and safety of these thousands of bathers, ranging from the toddling beginner to the expert swimmer, be guarded carefully.

Flowing waters probably offer the greatest danger of pollution and because this potential hazard prevails they should be avoided unless bathing conditions are carefully supervised. Safe water for bathing cannot be guaranteed at all times, for rivers as well as some of the smaller streams remain a frequently used means for the disposal of sewage from cities, villages, farms, and cottages along the many miles they travel from source to outlet. It is in such streams that the *Bacillus Coli* is found in greatest concentration, the presence of which is a definite indication of pollution.

Sewage polluted water may contain many kinds of disease producing organisms such as those causing typhoid fever, dysentery, inflammatory infections of the upper respiratory tract, injury and inflammation of the ears, skin diseases, etc. Any stream flowing through an inhabited area where pollution might occur is not a safe place for bathing. The flowing stream also presents hazards because of treacherous currents, sudden drop offs, and submerged obstructions which endanger the lives of careless bathers.

To avoid the health hazards which accompany the use of "old swimming hole" along the sunny banks of what use to be considered clean but is now known to be polluted, practically all of our larger cities have constructed artificial swimming pools in an effort to provide safe recreational advantages for their citizens. Many small towns and even villages have also followed suit with the result that North Carolina now has an ever increasing number of modern swimming pools of which we can justly be proud.

The mere fact that a community has been farsighted and public spirited enough to make available a beautiful artificial swimming pool with all of the modern trimmings does not, unfortunately, insure absolute safety for the user. There is no longer any doubt that they can and sometimes do transmit disease; however, the proper operation and supervision of the pool will reduce the incidence of disease to a minimum. Thus, the design, operation, and supervision of any swimming pool are the paramount factors to be considered in preventing the spread of disease. A poorly designed pool or one which is operated without adequate and conscientious supervision may therefore be a menace to the public health; whereas, a properly designed, constructed, and operated pool will provide the community with a safe place for many enjoyable hours of pleasant recreation.

The design of a swimming pool is strictly an engineering problem which demands much study and knowledge of the factors involved. These factors include, among other things, the location and natural lighting of the pool,

acoustics, routing of bathers, size and shape of pool, bottom slopes, markings, inlet and outlet devices, scum gutters and drains, visitors gallery, dressing rooms, shower rooms, toilets, foot baths, ventilation and heating, water filters, circulating system, piping system, pumps, hair catchers, cross connections, chemical feeders, suction cleaners, methods of disinfection, diving boards, emergency equipment, and proportioning the area of the pool to the expected load. The mere mention of the foregoing items indicates the problems of the promoters, designers, and construction engineers. It stands to reason, therefore, that the proper design and construction of the pool is of foremost importance because a poorly designed and constructed pool cannot be operated safely from the standpoint of public health.

Although the pool is of correct design, constructed of the best materials available, and is equipped with the most modern equipment, the operation of the pool must be intelligent and continuously effective. The filter must be maintained in a clean condition; the coagulating chemicals must be applied in the correct dosage; the disinfection of the filtered water should be continuous and effective; and the sanitation of the shower and dressing rooms requires constant supervision.

Probably there is no better means of spreading certain diseases than through a filthy bathhouse and swimming pool. As a measure of the potentialities of swimming pools, bathhouses, and gymnasium dressing and shower rooms as spreaders of disease, one can sight the wide prevalence of athlete's foot. Many athletes take the disease for granted. In recent years the development and use of foot baths, containing strong germicides, has aided materially in checking this disease.

What is the State Board of Health doing about swimming pool sanitation? There is no State law at the present time regulating the design and operation of pools; however, the local health units have sufficient authority under the general health law describing their duties and powers to pass and enforce rules and regulations on swimming pool sanitation. With

this in mind, suggested rules and regulations have been formulated for passage by local health units in North Carolina by the State Board of Health. Further, it is the intention of the State Board of Health through its Division of Sanitary Engineering to help local health authorities, municipal officials, and other persons interested in swimming pool design and sanitation by providing literature and other information for their use. The division feels that it can be of most service in reviewing and approving the plans and specifications for swimming pools and their apurtenances. The engineers also stand ready to make special investigations of swimming pool problems, therefore, the management of all swimming pools in the State are requested to bring their operational problems to the attention of the Division of Sanitary Engineering. Suggested plans for the construction of modern swimming pools are available through this division and will be furnished without cost upon request.

Swimming pools have come to stay. With a reasonable amount of care and study in connection with the design, operation, and supervision of pools they can and certainly should be safe recreational centers for all who use them, and one of which the community may be justly proud. Certainly, the present day trend toward properly designed artificial swimming pools is a definite sign of progress. While the installation of new pools has been temporarily curtailed because of the war-time restrictions which have been placed upon the use of materials and equipment, it is hoped and believed that many modern swimming pools will be included in the roster of post-war projects which are now being planned by municipal officials.



Ralph L. Asbury, Jr., son of Mr. and Mrs. R. L. Asbury, Winston-Salem, North Carolina. At five years of age Ralph, Jr. had been immunized against diphtheria, whooping cough, smallpox, typhoid and tetanus.

The demand for swimming pool and bathing beach sanitation, and there is a growing demand, should not in any way deduct from one's enjoyment of this fine recreational activity. In fact, greater provision for the health and safety of swimmers at bathing beaches and pools only adds to the attractiveness of the sport for both tourist and residents. Education has brought a public recognition of the fact that greater discrimination is necessary today in the search for safe swimming places and better supervision of public swimming pools than was practiced in the days of the old swimming hole, legendary and revered though its memory may be.



IN POST-WAR PLANNING for the reconstruction of the warring countries abroad, programs for tuberculosis control have a leading place. These programs will include methods of fighting tuberculosis demonstrated as successful in the 37-year-old Christmas Seal Campaign in the United States.

Tuberculin Testing Program In High Schools Of Cumberland County

By ELINOR H. SWAIM, Health Educator
Cumberland County Health Department
Fayetteville, North Carolina

THE war against tuberculosis since 1900 has been carried on with such amazing success that we have reason to hope for its eradication in this century. At the beginning of the twentieth century tuberculosis was the leading cause of death. Since that time the mortality from tuberculosis has shown a decline of more than 70%.

Because of this remarkable progress, public health officials and educators cannot afford to turn their attention from tuberculosis. Prevention of tuberculosis today is largely a matter of education. We know that when early cases are found, tuberculosis can be conquered. We know that to find early tuberculosis we must search for it—and search for it among apparently healthy individuals since in its early stages it usually has no symptoms.

The groups most likely to be affected are boys and girls in their late teens and young adults. Mass tuberculin testing in the high schools accompanied by a program of education seems to be our most effective weapon in reaching this group. For many years high school students in North Carolina have been given tuberculin tests as a matter of routine. In Cumberland County this program is carried on at intervals of three years. In this way we hope to reach every young person at least once during his high school career.

In carrying out the high school tuberculin testing program this year, the Health Department, the school administrators and teachers, and the County Tuberculosis Association each played a vital role. Before the program was started, the Tuberculosis Association agreed to pay for x-raying the students who showed a positive tuberculin test. Next, city and county school officials were contacted by the Health Officer to find whether they desired the pro-

gram at this time, and to get their suggestions for its procedure. Having secured the enthusiastic support of these agencies, the Health Department proceeded with its plans.

Principals and teachers in each of eleven high schools were visited by the supervising nurse, the school nurse, and the health educator. At these meetings the educational purpose of the tuberculin testing program was outlined. Teachers were furnished with fact sheets on tuberculosis and other tuberculosis materials to use in connection with their home room programs. With English teachers, arrangements were made to promote special articles on tuberculosis in school papers and the health department asked for radio scripts written by students to be used on the health departments weekly broadcast hour. Librarians were given special reference materials and materials suitable for exhibits. Student government associations in many of the schools took over the program as a special project. In one school the student government association created a great deal of interest by setting up a quiz corner where students could test their knowledge of tuberculosis on clever punch questionnaires. 4-H Club workers joined in with health workers and teachers to feature early diagnosis of tuberculosis as their club project for the month.

Several days prior to the actual testing, a special assembly was held in each school. At this time the purpose of the testing program was reviewed briefly by the nurse, and tuberculosis films especially designed for high school students were shown. The lively question and answer periods which followed these assemblies bore evidence to the interest already created by the teachers and the information already learned by the students.

Of 2,777 students, teachers and school employees, 2,337 voluntarily took the tuberculin test. Of these 502, or 21% showed a positive reaction. The educational program which accompanied the testing stressed the fact that negative reactors should have themselves re-tested routinely each year.

School officials cooperated heartily in seeing that the positive reactors from each school came in to the health department for x-rays on the appointed day. Fortunately, we had the assistance of technicians from the State Sanatorium who were able to make all x-rays in three days. 99.6% of the positive reactors received a chest x-ray. These students were taught that they should get a chest x-ray every year to be sure that there would be an early diagnosis, should the tuberculosis germs in their body cause disease. They were also forewarned that should they allow their bodies to reach a state of fatigue and low resistance, the disease might readily develop at any time.

Of the students x-rayed, 5 were found to have active tuberculosis and these 5 are already

placed in the County Sanatorium where they will have the best chance for an early and complete recovery. Besides these 5 active cases, 46 other x-rays showed tuberculosis lesions considered to be inactive. This group will be followed up with other x-rays from time to time. During the summer a public health nurse will visit the home of each child with a positive tuberculin test to give information on tuberculosis to the family and look for the source of infection. Every member of the household will be advised to have an annual physical examination including a chest x-ray.

The unusual success of our tuberculosis testing program this year could not have been achieved without the concerted effort and co-operation of all the agencies concerned—the school administrators, parents, and teachers, the Cumberland County Tuberculosis Association, the State Sanatorium, and the members of the health department staff. It is with such concerted effort in a vigorous and systematic attack against tuberculosis that we can hope to see one day the final eradication of this great plague.

Summer Time*

Summer Heat Fosters Some Diseases

WITH the appearance of summer heat, diseases which have been held in check by winter's cold are once more released to spread illness and discomfort to the human race. In winter our main problem is with diseases of the upper respiratory tract, such as colds which may extend and go on to more serious complications. In summer these respiratory illnesses decrease and diseases of the gastro-intestinal tract predominate. Thus, in warm weather we are confronted with disease outbreaks of food poisoning. These diseases of course are present in the winter as well as summer, but they increase in hot weather.

Refrigeration Retards Germ Growth

There is no doubt but what poor sanitation and poor refrigeration tend to play an important role in allowing staphylococci to multiply

and to elaborate their poison which in turn produces food poisoning. The staphylococcic germ is normally present in the nose and throat and is the principal cause of boils and other skin infections. So when such conditions exist in the one who is handling the food, it is hard to avoid getting the germs into food. When germs are introduced into food in this manner, it is extremely dangerous if such foods are left standing at ordinary room temperature or higher for a few hours, as poison may be produced which when ingested causes food poisoning.

Insects Spread Disease Germs

Summer is also the breeding time of flies and insects of all sorts. The fly we might con-

*WEEKLY HEALTH BULLETIN, Connecticut State Department of Health.

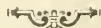
sider as a dirty insanitary insect which has no respect as to where it lands and feeds and in its devious flight cleanly prepared food is just as welcome as a landing field as the soil and animal discharges that may be littered around. Flies are able to transport the germs of dysentery. It has also been shown that the virus of poliomyelitis has been found on flies. Therefore, consider these insects as another summer danger which must be controlled in order to help protect against those diseases which seem to increase during this period. Again, mosquitoes gain new importance as they are the means by which malaria is transmitted. Returning members of our armed forces will afford one reservoir of infection from which malaria can be spread to the population. If homes are properly screened against mosquitoes and those mosquitoes that are in the house are killed each evening the danger from malaria will not be great to members of the household or the community.

Safeguarding Health In Summer

With outings and picnics, even victory gardening occupying the greater part of our summertime, we must consider how to safeguard ourselves so that we will get the fullest enjoyment from such pleasures without serious consequences. We must not drink foolishly from

streams which may be polluted or indulge in a supposedly clean cool drink from poorly protected wells. We must avoid those weeds and plants to which we may be sensitive, such as the ivy which can produce poisoning. The rays of the summer sun in themselves can be quite dangerous if we overexpose and allow ourselves to get burned. Victory gardens are going to be a boon for the coming winter months, as well as our supply of many vitamins to maintain a healthy state. We should utilize the vegetables we raise to balance our diets and maintain our health and then we should properly can those foods to assure us an adequate supply for the coming winter months. But again the necessary protection of proper canning by use of the pressure cooker, or, if this is not available, by boiling of these vegetables before using for at least a period of 15 minutes, should be thoroughly considered so that unnecessary danger is avoided.

Such warnings should not dampen our spirits that are soaring high now because of the approach of the summer months. Rather we should use ordinary consideration and exertion of care against those diseases which are brought on by summer heat so we can properly say — "It's great to see summer again!"



IN 1882, DR. ROBERT KOCH announced the discovery of the germ which causes tuberculosis—the tubercule bacillus. In 1885, Dr Edward L. Trudeau inaugurated sanatorium treatment for tuberculosis by building a little red cottage for two of his patients at Saranac Lake, New York.

Book Review

VIRUS DISEASES IN MAN, ANIMAL AND PLANT by Gustav Seiffert, translation by Marion Lee Taylor, 332 pages—Philosophical Library, 15 East 40th Street, New York City, New York, 1944—\$5.00.

In the first paragraph of the text there is a thought stimulating sentence which is essentially characteristic of the entire book: "Virus is not a scientifically founded biological idea, as has been believed, but only a collective designation imposed by methods." Ninety one pages are devoted to the general discussion of viruses. In one hundred sixty four pages we have a discussion of specific virus diseases of man, mammals and birds. The author includes in this section a discussion of the literature which suggests the possibility of a virus being the etiological factor in such diseases as scarlet fever and whooping cough, even though it is generally accepted that these diseases are caused by bacteria. It is apparent that his purpose is to give a comprehensive, though brief, review of existing literature and the conflicting trend of thought. About one-half of a page is devoted to the discussion of pox of cold blooded animals. His discussion of virus diseases of insects is covered in about four pages of the text. Virus diseases in plants is allotted ten pages. Virus—like organisms, including the causative factor of pleuro-pneumonia, the Rickettsia, the Bartonella and the Bacteriophages are covered in fourteen pages. The possibility of Filtrable Bacteria Forms is discussed in four pages. Methods of virus investigation round out the text with twenty-five pages. The author's review of the important literature appears to be as comprehensive as could be expected within the limits of the space available. At the bottom of each page are references to the literature discussed on that page. The translation in many instances seems to be a literal translation, which gives

us numerous occasions for sentence analysis.

As illustrations in discussing smallpox we find: "Variola is transmitted in natural infection from man to man by drops to a considerable extent, by which the pox virus reaches the organism on the path across the nasal mucous membrane of the upper air passages."

In the section devoted to rabies the opening paragraph reads as follows: "Hydrophobia has been longest treated as a virus disease experimentally. Pasteur established in his classic works published with Chamberland and Roux, that hydrophobia is evoked by a stimulus, a virus, that can not be bred on a nutrient medium and can be transmitted artificially from animal to animal. Later Pasteur worked out the method of protective inoculation against hydrophobia with a fixed virus weakened by rabbit transmissions." Two pages further on in this section we find the following: "The period of incubation in hydrophobia is extremely unequal and changing, it depends greatly on the seat of the injury and its distance from the central nervous system. The number of sicknesses following the bite of a mad animal also depends on the quantity of the virus introduced, with the saliva and its virulence. A sickness does not always follow a natural infection."

This book was published upon recommendation of the National Research Council. It would seem that the author accomplished his purpose which he states in his preface: "Its aim is to furnish an introduction for the many who wish to occupy themselves more closely with the virus problem, to make possible by references to literature further penetration into the subject, possibly at the same time to incite to independent work by mentioning many open questions."

THE TUBERCULOSIS DEATH RATE among unskilled workers is seven times higher than that among professional workers. The tuberculosis death rate of girls and young women between the ages of 15 and 25 is one and one-half times that of boys and young men of the same ages.

Notes & Comment

RECREATION

OUR front cover, giving a glimpse of one of North Carolina's State parks, suggests the interest of our people in recreation and should call to mind the vast variety of our opportunities for healthful use of leisure moments. If we can enjoy water, we have the ocean beaches, our lakes, our rivers and mountain brooks. If we prefer the solid earth, we have our game preservation, our small parks, and our large parks, either in the flat country of the East or in the mountains of our West. These are busy days for grown-ups but we would probably all be better, both in body and in mind, if we could catch a few moments of restful experience with the recreational facilities with which a kind Providence has so generously endowed our State. For our young people in the formative years of their lives recreation is even more important. They need it in order to build up a surplus of energy which they will need after they approach maturity. Our State has endeavored to safeguard the well being of our young people. Mr Hubbard has discussed in this issue some of the important aspects of safety in public bathing places.

* * *

TUBERCULOSIS

Miss Swaim has outlined for us the tuberculin testing program conducted by the Cumberland County Health Department. A program similar to this has been or will be conducted by a number of our other County Health Departments. It is encouraging to note that even in these days when the second World War occupies so much of our thought, that we still find time to fight enemies which have been attacking us from time immemorial and will continue their attempts to destroy us long after World War No. 2 has passed into history.

COMMUNICABLE DISEASES IN GENERAL HOSPITALS

In many phases of public health New York has been a pioneer and pace-setter.

Their experience and the precedence which they have established have been most helpful to communities less fortunate from the standpoint of wealth. In the field of hospital management and in the field of communicable disease control they have contributed much that is good to our administrative practices. Over the name of Dr. James E. Perkins there recently appeared in *Health News* a statement of the policy of the New York State Department of Health which we feel would be good reading in North Carolina.

"In the early part of this century, there was a tendency on the part of municipalities to build special hospitals for the isolation of communicable diseases. These so-called "pest houses" were designed particularly for the care of smallpox cases but were intended for the isolation of other acute infectious diseases as well. At that time, it was thought feasible to control communicable diseases in communities through isolation of recognized cases since it was felt that if all patients were isolated until they were no longer infectious, the spread of these diseases would cease. However, upon further investigation from a bacteriological standpoint, it was learned that in many communicable diseases, symptomless carriers and atypical cases which ordinarily would not be recognized as infectious are frequently more important in the spread of the disease in the community than the typical cases which can be detected. The routine hospitalization of acute communicable diseases for the sole purpose of limiting spread of the infection in the community, therefore, obviously would not accomplish this objective.

"At present, hospitalization of contagious diseases ordinarily is recommended only in those cases requiring care from the standpoint of the welfare of the patient himself

and which can be given only in a hospital and not at home. In rare circumstances it may still be necessary to hospitalize patients from the standpoint of the protection of the community as, for example, in the case of a communicable disease discovered in a transient or occurring in a home in which for certain reasons proper isolation is impossible."

"With the development of our bacteriological knowledge of communicable diseases, techniques have been devised to permit the safe isolation of cases of communicable diseases in general hospitals. These procedures vary with the disease: some patients can be cared for without danger on a ward; others must be confined to a private room. However, there is essentially no communicable disease which can not be cared for safely in a private room on a floor on which there are other patients with noncommunicable diseases, providing certain techniques are practiced rigidly by the attendants. It has become increasingly clear that the training and skill of the attendants are much more important in controlling the spread of infection than the physical equipment provided.

"In the opinion of the New York State Department of Health, therefore, separate buildings for the sole care of communicable diseases are not essential. In larger municipalities it may be more convenient for a hospital to have a separate building for this purpose but this is a matter of convenience and not necessity. In smaller places in which such a building would be vacant a large part of the time, an unnecessary expense to the community would be entailed.

"Every hospital is dealing with communicable diseases whether or not it recognizes that fact. Because of the prevalence of carriers and atypical cases among the general population, it is inevitable that such carriers and cases will be admitted from time to time to a hospital even though the infection is not detected at the time of admission. The routine procedures followed in these hospitals, therefore, with regard to the hygienic practices of the attendants, the handling of food and dishes, and the use of various types of equip-

ment (such as thermometers, enema apparatus, etc.) should be such that there is no likelihood of the transfer of secretions or excretions from one patient to another. If such techniques are not followed, sooner or later an outbreak is bound to occur through the introduction of pathogenic microorganisms by a carrier or atypical case."

* * *

LOOKING Within the last several days two local health department publications have come within the reach of our vision. Volume I, No. 1, of *Looking Over Our District's Health* is published by the Edgecombe-Halifax Health Department and Volume I, No. 2, *Looking In On Lenoir County Health Department* calls attention to the number one health problem in Kinston and assures us that its policy is *Looking Out For Your Health*. Both these publications are neatly mimeographed on two pages of letter size paper. *Looking Over Our District's Health* carries items on the following subjects: Controlling Tuberculosis, Rat Control Program, Eye Clinic, Little Jack's Puppet Show, Preschool Clinics, Prevalence of Diphtheria and Measles, and statistics concerning what the Health Department is doing. It also lists the entire personnel of the district department and gives the number of births and deaths in the district. It also calls attention of its readers to changes in personnel and introduces the new workers to the people of the district.

Looking In On Lenoir County Health Department features venereal diseases as the number one health problem in Kinston. The Health Committee Section of the Citizen's Service Corps in the Office of Civilian Defense arrived at the conclusion that venereal diseases were of first importance in that community. The campaign which has been carried out since that time is outlined briefly. A graph shows the incidence of venereal disease infection among the armed forces before and after the closing of Kinston's infamous "Sugar Hill." This publication also calls attention to change in personnel and introduces new workers to the community. One interesting feature

described is the library of the County Department. We believe this deserves special mention:

"The public is invited to use the library at the Health Department. The library, which is located in the Department offices in the basement of the Courthouse, contains books, pamphlets and periodicals on health topics which should be of interest to the general reader as well as to professional and semi-professional users.

"The list includes books on sanitation, health education, family relationships and sex education, nutrition, tuberculosis, industrial hygiene, vital statistics, school health education.

"At the present time the Health Department subscribes to thirteen periodicals, files of which are kept in the library for reference. A cumulative Index Medicus is available for finding articles pertaining to medicine which have appeared in magazines during the current year.

"Books and other materials from the library may be borrowed for a period of seven days, or readers may work in the library which has reading tables, lights, and chairs.

"Teachers, members of the medical profession and other interested in health problems may find interesting materials in the new library."



CONTROLLING TUBERCULOSIS

LAST YEAR AN AVERAGE of one person died every week of pulmonary tuberculosis in the Edgecombe-Halifax Health District. Thirteen others died of this disease during the first three months of this year. Today there are 106 known cases of tuberculosis in the district. Every effort is being made to find cases earlier and to examine all contacts. Tuberculin skin tests have recently been given to 1,141 high school students in Edgecombe County, 244 positive tests were found. These were x-rayed, resulting in the diagnosis of 34 cases of childhood type tuberculosis and one case of active pulmonary tuberculosis. Plans have been made for a similar program in Halifax County next fall. An extensive Early Diagnosis Campaign will be conducted.



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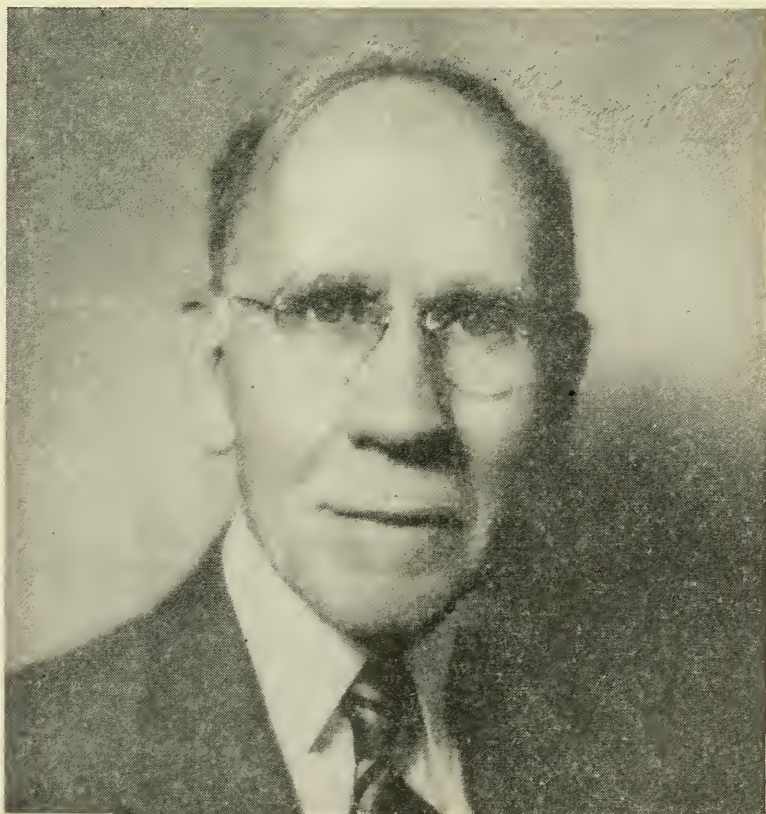
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DR. CARL V. REYNOLDS, M. D.
State Health Officer

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FREE HEALTH LITERATURE

The State Board of Health publishes monthly THE HEALTH BULLETIN, which will be sent free to any citizen requesting it. The Board also has available for distribution without charge special literature on the following subjects. Ask for any in which you may be interested:

Adenoids and Tonsils	German Measles	Sanitary Privies
Appendicitis	Health Education	Scabies
Cancer	Hookworm Disease	Scarlet Fever
Constipation	Infantile Paralysis	Teeth
Chickenpox	Influenza	Tuberculosis
Diabetes	Malaria	Typhoid Fever
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Don't Spit Placards	Padiculosis	Vitamins
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Flies	Residential Sewage	Water Supplies
Fly Placards	Disposal Plants	Whooping Cough

SPECIAL LITERATURE ON MATERNITY AND INFANCY

The following special literature on the subjects listed below will be sent free to any citizen of the State on request to the State Board of Health, Raleigh, North Carolina.

Prenatal Care.	Baby's Daily Time Cards: Under 5 months; 5 to 6 months; 7, 8, and 9 months; 10, 11, and 12 months; 1 year to 19 months; 19 months to 2 years.
Prenatal Letters (series of nine monthly letters).	Diet List: 9 to 12 months; 12 to 15 months; 15 to 24 months; 2 to 3 years; 3 to 6 years.
The Expectant Mother.	Instruction for North Carolina Midwives.
Breast Feeding.	
Infant Care. The Prevention of Infantile Diarrhea.	
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CARL V. REYNOLDS, M.D., State Health Officer

JOHN H. HAMILTON, M.D., Acting Editor

Annual Report North Carolina State Board of Health To Conjoint Session State Medical Society

By CARL V. REYNOLDS, M.D.
Secretary and State Health Officer
Raleigh, North Carolina

ONCE more it is my purpose to veer from the time-honored custom of reviewing, in detail, the activities of your State Health Department. The scope of these is so voluminous that time will not permit. I have here, however, a brief resume of the accomplishments of the various divisions, namely, Preventive Medicine, County Health Work, Epidemiology, Venereal Disease Education Institute, The Reynolds Research Laboratory, Field Epidemiological Study of Syphilis, State Laboratory of Hygiene, Sanitary Engineering, Oral Hygiene, Industrial Hygiene, Nutrition Service of State Board of Health, North Carolina Nutrition Study, School-Health Coordinating Service, Vital Statistics and the Publicity Activities. May I invite you to read it carefully when it appears in printed form during the year?

Rather than burden you with material which will be available to you for study at your leisure, it is my purpose to use this time to present a phase of it that should kindle within us a desire to avoid any longer a negative acquiescence, a positive opposition, or a lethargic attitude toward any change in our present system of medical care. Opposition to any change in the fundamental basis of the

present administration of medical care only hastens the day when we will have foisted upon us an administration which will be seriously objectionable, if not inimical to the interests of both ourselves and the public we are endeavoring to serve. It will, when this already has come about, be too late for us to make the free choice which is still ours.

Whether we like it or not, humanity is on the move, both physically and intellectually, and it usually gets what it wants. We must not blind our eyes to the fact that this is a realistic age and that the medical profession faces a golden opportunity for real leadership which it can ill-afford to lose.

There are lay groups which are adamant in their insistence that measures for improvement be taken; and this brings the members of our profession face to face with the stern realization that unless we act, they will. This means we will have superimposed upon us ill-advised schemes to which we could never subscribe, and the soundness of which would, to say the least, be highly questionable.

It is my prerogative to speak as a physician, not as a layman, in this matter—as one who is sympathetic with our problems, and not as a critic.

Admittedly, there is a high quality of medical care available to the American people, but its recourse is hindered by this problem, which we must face and solve: How can this care be made available and accessible to all who need it, more especially in our great rural areas? We should make this problem our concern, as much as it now appears to be the concern of the laity, which seems determined that it shall be solved and that without further delay. The measure of our success, then, will depend not only upon our sincerity of purpose, but upon our ability to grapple with an admittedly difficult problem.

Let us review for a moment. A five-year survey of the cost of medical care—May 17, 1927 to May 29, 1932—showed the great need for group organization for medical care, on a group basis, and its extension to the entire population, according to its varying needs. But nothing was done about it.

I believe that the public is not so much concerned about the means as it is about the undisputed ends in this matter. This, I think, should be encouraging, for it does not denote a loss of confidence in the profession by the public, but an insistence that it assume the role of leadership.

We must either lead, which we are capable of doing, or be carried away with the flood, which could only spell disaster. We have received the challenge, and we must meet it. The gauntlet has been thrown down; we must take it up!

I am more convinced of this than ever, since returning from Chicago, where I attended a conference on medical care and health services for our rural people, the purpose of which was to consider ways and means by which the rural population may obtain more adequate medical care and health services and share more fully in the benefits of modern medical science. In attendance upon the conference were delegates representing farm and rural organizations, medical men and technical specialists from twenty states, the District of Columbia and Canada; also representatives from the American Medical Association, Labor, the United States Senate Committee on Educa-

tion and Labor, Agriculture, the United States Public Health Service and liaison consultants.

I came away from Chicago more convinced than ever that sympathetic medical guidance is of paramount importance, and that it is up to organized medicine to come forward with a definite plan, at an early date—a plan that **will work**, otherwise, we will find ourselves knocking at the door, only to receive the stern answer: "You cannot enter now!"

The basis for any sound plan, in my judgment, is not federalized medicine; neither is it socialized medicine, in the commonly accepted sense of that term—but supplemental medicine, which already has become an accomplished fact and has played a conspicuous part in the progress we have made, even though we have only scratched the surface.

In substantiation of my claim that the solution must come through an expanded system of supplemental medicine, rather than regimentation, I need but to call your attention to the record of Federal assistance to the states for the single fiscal year of 1944. Such assistance amounts to the almost unbelievable sum of \$262,145,260, divided as follows:—Title VI (Social Security), \$11,000,000; Venereal Disease Control, \$10,276,200; Maternal and Child Health, \$5,820,000; Crippled Children, \$3,870,000; Emergency Maternal and Infant Care, \$23,000,000; Emergency Health Sanitary Activities (general), \$2,983,376; Malaria Control, \$7,649,314; Industrial Hygiene, \$546,310; projects approved covering construction and maintenance of health centers, hospitals, rapid treatment centers and nurses' homes, \$75,000,000; construction of sanitary facilities, \$122,000,000.

Numerous other benefits accruing from supplemental medicine might be cited. The number of venereal disease clinics in the United States increased from 3,245 to 3,569, approximately 10 percent. Serologic tests for syphilis totaled 20,500,000 and arsenical drugs for the treatment of syphilis distributed by the State Health Departments continued to increase; a total of 8,727,964 doses of arsenicals was distributed to clinics and private phys-

icians. This was an increase of nearly 7 percent.

The above are national figures, but let us see just how North Carolina fared in the distribution of federal assistance for supplemental medicine. From Title VI this fiscal year we are receiving through the State Health Department, the sum of \$436,985. The amount allotted us for venereal disease control is \$463,923; for maternal and child health, \$238,971; crippled children, \$117,229 and for industrial hygiene, \$16,378. And here is a figure that will amaze you: So far this year there has been channeled through the North Carolina State Board of Health the staggering sum of \$652,428 for Emergency Maternal and Infant Care, that is, for pre-natal obstetrical and post partum care of soldiers' wives giving birth to children and for hospitalization of wives and babies up to twelve months old. Would you call this "regimentation?" Well, hardly, when the money is paid directly into the pockets of North Carolina doctors and to North Carolina hospitals. The same is true of other funds channeled through the State Board of Health. In this procedure of supplemental medicine, where is there any socialized medicine? Where is there any State medicine? And if it can be done in North Carolina with the proper guidance, it can be done in every state in this American Union, not to the detriment of the medical profession, but to the merited benefit of the profession, which is the only source through which this money can pass and gain the objectives for which it was appropriated and allotted.

As one more example of supplemental medicine, as it is shared by North Carolina, I would point out the crippled children's program, for which, as I have said, we are receiving this year \$117,229. This program was established by the State Board of Health under a policy approved by our best orthopedic surgeons, who are employed to execute it, the money going to them and to hospitals through the State Board of Health, to which it is allotted by Washington, and serves as a financial supplement. It would certainly not

be spent otherwise, and no financial benefit would accrue to any one.

It is well to bear in mind that supplemental medicine means just what the terms implies—addition, not subtraction. Instead of depriving physicians of income, it adds to their income, and rightly so.

In bringing about changes and equalizing the distribution of medical care and hospitalization, so as to bring these within the reach of all, it will be necessary to change some of the methods we heretofore have employed, but not personnel, as any successful program must of necessity be carried out under the supervision of the medical mind.

Organized medicine has no desire to become a pressure group; neither should it sit idly by and, itself, become the victim of any pressure group. It can avoid this by taking the initiative, by assuming the leadership that rightly belongs to it. It must lead in the march of progress, rather than bring up the rear or be left out altogether.

That, I think, is what Governor Broughton had in mind when he, with the assistance of the medical mind, evolved his plan to see to it that "no person in North Carolina shall lack hospital care or medical treatment by reason of poverty or low income." This plan, if it succeeds, must be carried forward intelligently, conscientiously and concertedly; and we, as a profession, can do much toward furnishing the necessary leadership, with "Service Before Self" emblazoned across our banner as we move forward.

Approval of the Broughton plan, to which we should all subscribe as something definite and concrete and as a working basis for future advancement, is, I am glad to note, the rule rather than the exception.

The Broughton plan, therefore, will bear re-emphasis at this time. It provides, briefly, that:—

1. The present two-year medical school at the University be enlarged so as to provide a full four-year course. Two other medical schools in the State—Duke University and the Bowman Gray School of Wake Forest College at Winston-Salem already are on a four-year

basis, and doing magnificent work; but it is obvious from a study of figures that these schools do not begin to supply and can never supply the full requirements for physicians to serve adequately the civilian population of North Carolina.

2. That an adequate hospital be erected at the University of North Carolina, with a capacity of not less than 600 and preferably 1,000 beds, which in conjunction with the Medical School and the hospital facilities already available at University shall constitute a State hospital center; that such hospital shall be built by State funds, supplemented by such Federal, private, and foundation funds as may be available, and shall be open to patients from all sections of the State, with provisions for free hospital and medical service to all such patients as may be unable to pay for same; that the various counties of the State be encouraged to set up appropriations to provide a substantial portion of the cost of patients who may be sent to such hospital from such county, such funds to be supplemented by funds that may be available from the Duke Foundation or other foundations now in existence or hereafter created for such purpose.

3. That since it is obvious that one hospital center could not begin to serve the State under this sort of program, that other, though smaller, hospitals to serve as local centers be established in strategic regions of the State for hospitalization of those in need of medical care without means to provide that care. It is possible that some of the Army or Navy hospitals that have been built in the State in connection with military and naval installations, or otherwise, may be available in connection with this program.

Governor Broughton's program would carry into some of the smaller counties well-equipped hospitals which would attract the best element of professional service and encourage doctors to leave the centers and work among the approximately 73 percent of our population who live in rural communities and towns with less than 2,500 population. Would this not be a grand contribution to humanity in its

over all aspect!

Would that other states might join with the Old North State in leading the entire nation in carrying out this magnificent program of such features as do not now exist in our Sister States to the north and to the south.

With such a program in effect, we could not any longer bemoan the fact that:—

"Man's inhumanity to man
Makes countless thousands mourn."

Respectfully submitted,
Carl V. Reynolds, M. D.
State Health Officer

DEPARTMENT REPORTS

DIVISION OF PREVENTIVE MEDICINE

—The work of this Division is divided into four parts, namely, Medical Correspondence, Health Education, Crippled Children's Work and Maternal and Child Health Service.

Medical Correspondence. In this, the informational service in connection with this responsibility has necessitated the writing of about five thousand individual letters, answering direct and personal requests for information on various subjects. The answer to some of these letters as always has required considerable effort to guard against errors of fact and to impart sound medical information.

Health Education. It will be noted that under the term health education, we have excluded the medical correspondence in this year's report, although the two items could be considered essentially the same under the title health education. However, under the item of health education the preparation and distribution of specific items of literature is discussed.

The director of this division in his capacity as director of health education is responsible for the efficient conduct of what may be termed the mailing division of the State Board of Health. A total of 2,149,386 pieces of literature has been sent out from the mailing room during the past year.

Crippled Children's Department. In the crippled children's department in connection with the Vocational Rehabilitation of the State Department of Public Instruction, 22

diagnostic clinics have been maintained. With the exception of the State Hospital at Gastonia, these clinics have been conducted on a monthly basis by a competent orthopedic surgeon. There were a total of 264 clinic days in which 10,249 examinations have been made, 3,221 first admissions to the diagnostic clinics were recorded, and in addition 1,332 adults were examined in these clinics, 1,380 children were hospitalized and 1,208 children were discharged from hospitals in this service during the year.

A general rise in hospital cost, which necessitated new hospital contracts in this department has somewhat curtailed the number of children who could be operated upon and hospitalized for the year. However, the work has been carried on on a fairly satisfactory basis. All of the crippled children who were hospitalized and received medical and surgical service, the children being certified by local welfare departments as in need of this service, was done at the expense of the State Board of Health. It can thus be seen that these children received a highly valuable service that could not have been provided in any other way.

Maternal and Child Health Service. In connection with the normal work carried on by this department for several years, following an appropriation made by Congress in which funds were made available on the 18th of March, 1943, an overwhelming amount of work has been undertaken by the division during the year. This has been known as the Emergency Maternal and Infant Care program, EMIC for short. It is a program with a two-fold purpose. First, to provide medical and hospital and nursing service in maternity cases for wives of service men in all the armed forces in the 4th, 5th, 6th and 7th pay grades, and to provide medical and hospital and nursing care for the babies of such men under one year of age. And second, to pay the physicians and hospitals and nurses an adequate fee for this service. The director of the division in his capacity of maternal and child health director was officially designated by the U. S. Children's Bureau as administrator of the plan under the policies of the State Board of Health

for the State of North Carolina. A plan of work had to be submitted to the Children's Bureau for approval before the work could be inaugurated and the money available. A plan was submitted by the Division and was the first to be accepted of any State in the Union.

A medical advisory committee and a hospital advisory committee was set up. The former held its first meeting April 16, 1943, and the second held its first meeting July 15, 1943. Working plans were agreed upon in the two fields by these two bodies sitting in a conference with the officials of the State Board of Health including the State Health Officer. A fee schedule was agreed upon to be submitted to Washington. About eight out of ten of the schedule requests were granted, later on, after much correspondence and many conferences with the officials of that division of the Federal Government.

The task of obtaining contracts with hospitals has been a stupendous one. Up to the first of April during the year covered by this report, a total of 101 hospitals have been enrolled in the program. Hospitals are paid on a certified statement of their per diem first class ward cost. The program has been more or less entirely satisfactory to the hospital managers. Very few complaints have been made by them. All sections of the State are now represented in the hospital program on a satisfactory basis, with the exception of the three far western counties of Cherokee, Clay and Graham, and with the exception of the counties in the Elizabeth City section of Dare, Currituck, Camden, Pasquotank, Perquimans, Gates, Chowan, Hertford and Bertie, and with the exception of the hospitals serving white patients in the City of Greensboro and of the hospital in Burlington which have refused to cooperate.

The next most difficult part of this program was the problem of enlisting the services of practicing physicians throughout the State who would agree to accept the fees allowed by the government and take care of these service men's wives and their babies on the agreed upon terms and for and in considera-

tion of the fees allowed. During the year a total of about one thousand physicians accepted these cases and provided this service.

From April 8, 1943, through March 31, 1944, a total of 9,493 cases were authorized for the service and a total of \$208,295.63 has been paid out for physicians' or hospital services alone. Most of the appropriation has gone solely for physicians' or hospital services, practically none has gone for administrative purposes. A small percentage of course has gone for expensive drugs used in treating these cases and for special nursing service.

A better idea of the extent of this program may be had when it is stated that the two senior stenographers have had to write something like thirty thousand additional personal letters, a major percentage of which has been dictated letters. This will give a definite idea of the overwhelming amount of work that the division has had to do in carrying on this program.

In order to devote the amount of time required to carry out such an intensive and extensive program, it has been necessary to neglect to some extent the routine work of maintaining the department's regular maternity and well baby clinics throughout the State. However, with the aid of some of the health officers and with the competent group of public health nurses, a limited number of physicians have been willing to continue the conduct of the clinics, most of them on a monthly basis, and while the number of patients admitted to these clinics both for prenatal and well baby care has been less than that recorded the year before, the number is still impressive. In conclusion, both the maternal and infant death rate for 1943 was lower than ever before.

DIVISION OF COUNTY HEALTH WORK

Dr. R. E. Fox, Director

During the present fiscal year Camden County joined the Pasquotank-Perquimans Health District and Hoke County joined with Moore to make a new district. Camden County has been staffed and operating since July but because of lack of personnel Hoke County has not yet begun to function.

This brings to eighty-nine the number of counties participating in whole time health programs, leaving only eleven of the one hundred counties of North Carolina without such service. Full-time health service continues to be maintained in six city health departments.

As the war has advanced it has become more and more difficult to secure and hold public health workers of all types. Many of the public health nurses have gone into the Red Cross or the armed Forces; the draft boards have seen fit to call a number of the younger men who were acting as sanitarians; and several of the health officers have resigned to accept other employment or to enter the private practice of medicine. Everything possible is being done to offset the shortage of personnel and those individuals who are studying at their posts during these times of strain are deserving of every commendation.

Five of the departments are headed by medical officers of the U. S. Public Health Service assigned to North Carolina. The counties in which these men are serving are: Pasquotank-Perquimans-Camden District, Lenoir County, Richmond and Scotland Counties (served by one health officer) and Carteret County. Two epidemiologists assigned by the U. S. Public Health Service are on duty in the following departments: New Hanover, Lenoir and Craven.

While the number of counties participating in whole time public health service has increased by two, there has been no actual increase in the number of departments because of the fact that the two new counties joined existing departments to form districts. There are sixty county and district departments. In these sixty departments and five of the city departments (Winston-Salem excluded) there is budgeted for the year 1943-44 a total of seven hundred and eighty-seven full-time public health positions.

Since July 1, 1943, there have been trained, or are now being trained, one health officer, eight public health nurses, three sanitarians, one laboratory technician, nine public health educators, or a total of twenty-two individuals.

On September 1, 1943, under the reorgan-

ization of the State Board of Health, Dr. Robert F. Young was made Acting Director of County Health Work, in the Division of Local Administration. Doctor Young served in this capacity until February 29, 1944, when he resigned to go into private practice.

DIVISION OF EPIDEMIOLOGY

Dr. J. C. Knox, Director

Dr. C. P. Stevick, Acting Director

General. The Division of Epidemiology has been called upon to assist in many communicable disease problems throughout the State. The Epidemiologist investigated outbreaks of smallpox, malaria, endemic typhus fever, gastroenteritis, meningitis, and infectious jaundice during the year.

In addition to the routine activities connected with the administration of the communicable disease regulations and control programs, various reports on the status of certain diseases and programs were prepared in response to local and out-of-state requests. These reports have included information on anthrax, botulism, food-borne outbreaks in general, rabies, and endemic typhus fever.

The state-wide typhoid carrier register started several years ago has recently been revised and a new system of follow-up and supervision has been instituted in conformity with accepted practices in many other states.

A revision of the communicable disease regulations based on the recommendations of the U. S. Public Health Service, the American Public Health Association, and the current requirements of other states has received a great deal of attention recently and is now ready for presentation to the State Board of Health.

A system for correlating diagnostic laboratory reports with morbidity reports has been set up in order to keep local health officers more completely informed as to the prevalence of the communicable diseases in the areas under their jurisdiction.

Central Tabulating Unit. The Central Tabulating Unit is responsible for the processing and handling of various statistical data and morbidity reports.

Reports to local and out-of-state health departments concerning changes in address of and contact information obtained from syphilis and tuberculosis cases are made daily.

In this connection there has recently been set up, with the assistance of the U. S. Public Health Service, a central registry which acts as a clearing house for all venereal disease contact data and permits the evaluation of the routine procedures for contact investigation. Additional personnel has been obtained for this purpose.

The following statistical reports are being prepared at regular intervals:

1. For the **Division of Epidemiology:**

Weekly, monthly, and annual reports of thirty-five reportable diseases as required, for selected cities, counties and the state.

Monthly activity, population, and treatment status reports for the venereal diseases.

A daily report for the Division Director showing the reported incidence of certain principal communicable diseases, by county, throughout the state.

2. For the **Division of Vital Statistics:**

An annual report of all births, deaths, and causes of death, by place of residence and place of birth or death.

Monthly and annual birth and death index listings.

3. For the **Division of County Health Work:**

Quarterly reports reflecting all health activities carried on in each local health department.

4. For the **Division of Preventive Medicine:**

Quarterly reports reflecting all health activities relating to maternal and child hygiene in each local health department.

5. For the **State Laboratory of Hygiene:**

Monthly and quarterly tabulations of the results of all serological tests by sex, color, purpose of test, and occupation.

Quarterly listings of all serological tests by county, physician or hospital, with an alphabetical tabulation of names.

Additional statistical reports are prepared for each of the divisions in connection with special problems from time to time.

Of the various activities listed for the Central Tabulating Unit, that pertaining to the venereal diseases continues to require more time and emphasis. Eighty-eight counties are now reporting new cases, treatments, and other services rendered venereal disease patients. The remaining counties, along with the various institutions, hospitals, and private physicians, report only new cases.

A total of 12,293* new syphilis cases, no previous treatment received, was reported from April 1, 1943 through March 31, 1944.

For the corresponding period last year a total of 17,687 new untreated cases was reported. It is encouraging to note that the incidence rate has reached a peak and has begun a downward trend. This becomes doubly significant when we consider we are getting better reporting all down the line and case-finding efforts have been intensified. An average of 23,141* cases was given some treatment each month in the clinics reporting treatments to the Central Tabulating Unit. An average of 63,748* treatments was given in these clinics each month. The total number of treatments for the entire year was 764,980*.

A total of 10,433* new untreated cases of gonorrhea, chancroid and other venereal diseases was reported from all sources. This was also a significant decrease from last year's figure.

During the past year several changes have been made in the Central Tabulating Unit routine. The venereal disease reports form has been revised to enable us to use the original card for machine tabulation. Additions to the data recorded for each case were made in order to indicate the type of intensive therapy given patients admitted to either the Charlotte or Durham Rapid Treatment Center. Certain new indexing and tabulating procedures have been added to handle information for the Central Registry.

Film and Drug Distribution Unit. The film library of the Division of Epidemiology has a complement of approximately seventy-five motion picture films. These films are on various subjects, including venereal disease, tuberculosis, cancer, nutrition, malaria, colds, safety,

child health, sanitation, dental care, geography, first aid, and a number of comedies.

During the past eleven months we have had a considerable increase in our film loans to the local health departments and other agencies as illustrated below:

May	27
June	33
July	29
August	23
September	26
October	34
November	64
December	38
January	81
February	79
March	117
Total	551

These figures are only for the number of times films have been sent out from this Division and do not include the number of times films have been transferred from place to place while on loan to the local health departments or the number of times they were shown. At this time we do not have data on the use of all of our films; however, the records we do have indicate that a single film has been shown as often as fourteen times to approximately 3,300 people in ten days.

Because of our increasing film loans and a continued demand for such, a descriptive film catalog with a short synopsis of each film has been published. With the aid of this catalog, our film loans are expected to increase even more.

During this report period the amount of venereal disease drugs furnished to private physicians shows a considerable increase over the previous year. A total of \$10,115.22 in venereal disease drugs was furnished to private physicians during the past eleven months ending March 31, 1944. This is an increase of \$3,606.88 over the previous year, that amount being \$6,508.34.

Malaria Investigation and Control Unit. During the report period, due to the reduction

*Figure for the month of March 1944 was estimated.

in State personnel, activities of this Unit, other than the MCWA program, were largely curtailed. The only personnel remaining on the State-financed program at the beginning of the year were one entomologist and two laboratory technicians. One of these technicians resigned during the year.

The more important functions of this Unit were continued with the reduced staff. Ten thousand seven hundred sixty-eight blood slides were taken and prepared for examination and 11,255 slides were examined. The entomologist made inspections of all ponds for which construction permits had been previously granted and issued permits for new impoundments. He also made special surveys in counties where flareups of malaria occurred. He assisted the MCWA program in the preparation of maps, blood slides, and entomological surveys and in the identification of numerous mosquitoes.

The Malaria Control in War Areas program, which is financed by the U. S. Public Health Service, continued to operate on a large scale with gratifying results. The program operated in thirteen areas and furnished protection for sixty-nine war establishments. For use in connection with this program, the U. S. Public Health Service furnished the State seven engineers, four entomologists, and about three hundred other persons, including clerical workers, supervisory personnel, and laborers. The U. S. Public Health Service also furnished sufficient equipment and materials for the program, including thirty trucks and nine passenger vehicles.

During the year approximately seven miles of large canals and one hundred thirty miles of hand ditches were cut to drain water which was breeding malaria mosquitoes. One hundred three thousand six hundred two gallons of larvicide oil were applied to 3,647 acres of water surface to kill mosquito larvae.

Venereal Disease Control Unit. The major changes in this work which have occurred since the last report are outlined below:

The Rapid Treatment Center at Charlotte, North Carolina, housed in the old "New Charlotte Sanatorium," was opened for the

reception of patients on August 13, 1943. Intensive therapy is given patients by the following methods:

(1) Slow intravenous drip of an arsenical plus intramuscular injections of bismuth, requiring from five to ten days.

(2) Multiple injection method with an arsenical plus bismuth, requiring ten to twenty days.

(3) Sulfonamide-resistant gonorrhea is given penicillin and requires about five to eight days.

Since opening date to the time of this report 1,061 patients have been admitted. This Center is operated cooperatively by the N. C. State Board of Health and the U. S. Public Health Service through funds made available by the Federal Works Agency.

On November 15, 1943, the U. S. Public Health Service, cooperating with the N. C. State Board of Health, opened a Rapid Treatment Center in Durham. The methods of treatment are much the same generally; specifically, however, the two differ. To date 548 patients have been admitted to this Center.

Dr. Robert D. Wright, P. A. Surgeon, U. S. Public Health Service, was relieved of duty in this State in November and assigned elsewhere. The services of consultants in venereal disease control are greatly needed but scarcity of personnel makes it impossible to secure qualified physicians to fill these vacancies.

With the change of certain administrative functions, the venereal disease control activities were placed under the supervision of the District Directors, elsewhere discussed.

There is a definite decrease in the clinic population in the local health departments, this largely being the result of discharging cases which have been under treatment and management for a long period of time. The major efforts are now being placed upon the discovery and holding of early cases and the investigation of contacts. The active cooperation of the Department with the armed forces is a service requiring much effort and time.

The 270 clinics furnish available services for 94* percent of the State.

The research projects under the direction of Drs. William L. Fleming and John J. Wright are continuing.

Administration of the Premarital Examination Law. The requests for information concerning the North Carolina premarital examination law that have been handled by the Division of Epidemiology continued to be large in number. Questionnaires were sent to all state health departments to obtain information relative to premarital examination laws in other states. These data have been of great value to citizens of this State and to the many non-residents temporarily located in North Carolina.

Endemic Typhus Fever Control Unit. This Unit was transferred to the Division of Sanitary Engineering during this report period. It is assumed, therefore, that the specific unit report from the consultant engineer of that unit will be presented as a part of the Division of Sanitary Engineering report.

Community Health Education. The demonstrations in community health education that were begun in 1941 by the State Board of Health in cooperation with the U. S. Public Health Service and local health departments continue to show steady progress. Programs are now under development in Cumberland, New Hanover, Lenoir, Richmond, Craven, Carteret, Orange, Person, Chatham, Forsyth, Yadkin, Davie, Stokes, Pasquotank, Perquimans, Edgecombe and Halifax counties.

In these counties educational programs are built around the needs of the people. Some plan of organization is devised by the particular community in order that each citizen may have an opportunity to receive health information that will be especially useful to him.

A wide variety of health education programs have been developed in these counties and include such activities as promoting tuberculin testing in the schools, conducting venereal disease control campaigns, organizing food handlers' courses, sponsoring victory canning and nutrition programs, making sur-

veys on juvenile delinquency, and developing community councils.

In addition to the general health education activities mentioned above, special programs in malaria education were carried on in Pasquotank, Perquimans, Robeson, Onslow-Pender, Lenoir, Cumberland and Richmond counties during the summer of 1943.

During the school year provision was made by the State Board of Health for an extension course in sex education. This course carried both graduate and undergraduate credit from the University of North Carolina and was conducted by Mrs. Gladys Groves in eight counties. This is the first time that such a course has been given as an extension course; several hundred teachers enrolled. A similar course will be given at the summer health education workshops which are jointly sponsored by the State Department of Public Instruction and the State Board of Health.

Closely associated with the programs of community health education now being developed in North Carolina is a training program for health educators. As a stimulus to the development of a national program in health education, forty-eight students were awarded fellowships for graduate study in the field of health education at the University of North Carolina. Of these fellowships, twenty-one were made available by the W. K. Kellogg Foundation, three by the Commonwealth Fund, and twenty-four were awarded through Social Security Funds by state health departments as follows: North Carolina 12, Oklahoma 6, Illinois 2, Indiana 1, South Carolina 1, Louisiana 1, and Florida 1. From this group twenty students received their Master of Science degree in Public Health in March and have taken positions in California, Washington, Illinois, Ohio, Michigan, Indiana, South Carolina, New York; with TVA, U. S. Public Health Service and U. N. R. R. A.; four are remaining in North Carolina.

The interest created by the North Carolina program has stimulated the development of similar programs at the University of Michigan and Yale University.

*Based on population of 1940 census figures.

Local health departments in North Carolina have served as training centers for University of North Carolina health education students. The public health educators in these departments, in addition to their teaching and organizational activities in the communities, have stimulated the establishment of tuberculosis registries, have organized and conducted staff conferences, have prepared annual reports, have carried on radio programs, have written press releases, and have produced needed health educational materials.

Although as yet there is no state in the country that has a complete health education program, North Carolina has made great progress in the past year toward attaining that goal.

VENEREAL DISEASE EDUCATION INSTITUTE

Mr. Capus Waynick,¹ Director

The Venereal Disease Education Institute is an agency supported jointly by the State Board of Health and the United States Public Health Service, with substantial financial aid from the Zachary Smith Reynolds Fund. The Institute was established to promote public education about the Venereal Disease through producing, demonstrating and evaluating informational devices and techniques. The findings in its educational research and any acceptable materials it developed were to be made available to workers in the venereal disease control field on the national level.

The Institute is operating in its second year. It has a director and a staff of four writers and education specialists and four artists in addition to clerical personnel. The agency did not begin production of educational materials until after some months of self-education for the staff. This report for the year ending March 31, 1944, therefore, covers almost exactly the period in which its materials have been in use.

During the year, the Institute has conducted intensive field demonstrations of materials and methods in four communities, in each instance under the guidance and with the full cooperation of the local health officer. These

demonstration points were Concord-Kannapolis, High Point, Burlington and Rocky Mount. At the present time, the Institute has a fifth demonstration in progress in Vance County. In addition, staff members have lectured before inviting groups throughout the State.

In the course of the year, 34 different pieces of educational material have been prepared and published by the Institute. Three others are in the hands of the printers. Many of these materials have been used in the demonstration areas, where the Institute has attempted to determine their value. Samples have been distributed widely by the U. S. Public Health Service and the Institute and supplies of them have been purchased by many State and local health departments, Social Hygiene Associations and others engaged in the program for control of the venereal diseases.

Despite the fact that the Institute itself has exerted little effort in promoting distribution of its materials outside its demonstration area, the demand for those materials has grown to very considerable volume. The distribution of pieces of material for this first year of production rose month by month to a total of 433,815 for the period. Of this total 86,985 were used in this State. Some of the materials have gone into every state and the demand for them in some instances comes from across the national borders.

A recent sharp increase in distribution has been caused by military demands. Institute materials are going now to every military installation in continental United States.

Within the past month 30,000 Institute posters were sent in a single shipment to Hawaii while several of the Latin American countries are asking for reproductions in Spanish and Portuguese. The Canada Health League adapted one Institute booklet for general Dominion use.

For its research activities, the Institute is financed by U. S. Public Health Service funds. The distribution of its materials outside of North Carolina at prices based on production costs is made possible by the contribution from the Zachary Smith Reynolds fund. All materials going outside of the State in quantity

are sold, with the receipts from the sales going back into the revolving fund set up by the Foundation's aid.

ACTIVITIES OF THE REYNOLDS RESEARCH LABORATORY

Dr. Wm. L. Fleming, Director

1. **Research Activities.** At the request of the Subcommittee on Venereal Diseases of the National Research Council, the facilities of this laboratory were made available February 1, 1943 for the investigation of urgent problems in venereal disease control of concern to the Armed Forces. The Army in particular had not been entirely satisfied with the effectiveness of the chemical method used by the soldier soon after sexual intercourse to prevent the developing of syphilis. Calomel in the form of an ointment applied locally to the genitalia and nearby skin surfaces was the drug which had been used in this connection. Accordingly a study was undertaken to determine whether or not calomel ointment would be more effective as a prophylactic agent against syphilis if the calomel powder it contained were ground or prepared in such a way that the particles would be much smaller. This work was carried out in conjunction with a federal agency, the Office of Scientific Research and Development. A large scale experiment was set up in order to obtain an answer to this problem in as short a period of time as possible. Rabbits were used as the experimental animal, and a technique was utilized which approximated the conditions under which calomel ointment would be used as a prophylactic agent against syphilis in humans. The experiments showed that calomel ointments containing calomel in smaller particle size were more effective than those containing calomel in larger particle size. These results were transmitted through the Office of Scientific Research and Development and the National Research Council to the Armed forces. The U. S. Army has taken cognizance of these results and now specifies ointments containing small particle size powder for the prophylaxis of syphilis.

As a part of an effort to discover drugs more effective than calomel in the prophylaxis of syphilis, four experimental arsenical drugs prepared in the laboratory of Dr. Harry Eagle of the U.S.P.H.S. were investigated. These drugs were found to be of definite merit but not necessarily superior to calomel. These results will be communicated to the Armed Forces.

At the present time the laboratory is assisting in the evaluation of the effectiveness of penicillin in the treatment of syphilis. Preliminary results have indicated that this drug may prove to be superior to the arsenical drugs which are our mainstays in antisypilitic treatment today. The complete lack of serious toxicity on the part of penicillin is in pleasant contrast to the toxicity of the arsenicals.

2. **Instruction in the School of Public Health.** The Director of the Laboratory also serves on the teaching staff of the School of Public Health of the University of North Carolina. In this capacity during the fall and winter terms of 1943-1944, he has given instruction in venereal disease control to 33 public health nurses, 34 public health educators, 3 special students and 1 physician.

3. **Instruction of Physicians of State.** This program has been interrupted by the war. The diminished number of private practitioners in the State are so busy that it is impossible to arrange postgraduate training. Some contribution in this connection has been made by the Director in talks before county medical societies.

4. **Durham Clinic.** The Venereal Disease Control Clinic of the Durham, North Carolina, Health Department is a very vital part of the Director's instruction program not only for the physicians of the State but also in connection with the School of Public Health. For several years the Director has spent a great deal of time in helping to build up this clinic as a model clinic with adequate teaching facilities. It has been very generally regarded both in and out of the State as an excellent clinic.

During the latter half of the past year difficulties in holding suitable personnel have made it increasingly hard to maintain this

high standard of performance. The Director and Dr. John J. Wright of the School of Public Health and the State Board of Health have been forced to spend much more time than previously in the clinic in order to maintain the quality and quantity of the work. Up to the present we feel that this has been accomplished.

The total number of syphilitic patients under treatment in the clinic has declined in the past two years. This decrease is definitely not due to any lowering of the standard of performance. Among the more important factors are:

(a) By now a considerable proportion of Durham residents with late syphilis have been treated. This has been a great service to the community and State because it has lessened the number of such individuals who will de-

velop the crippling and lethal manifestations of late syphilis.

(b) The "active list" of syphilitic patients has been kept down by placing patients on probation as soon as they have had sufficient treatment.

This lessening of the clinic load has enabled more time to be devoted to the finding and placing under treatment of cases of early or infectious syphilis; this is the type of effort which will cut down the attack rate of syphilis.

FIELD EPIDEMIOLOGICAL STUDY OF SYPHILIS

Dr. John J. Wright, Director

Studies in the prevalence of syphilis based upon serological tests taken for all purposes on persons in the Orange, Person, Chatham Health District and the Durham Health Department are shown in the following table:

	1941		1942		1943	
	white	colored	white	colored	white	colored
	Prevalence Rate per 1000 Population	Prevalence Rate per 1000 Population	Prevalence Rate per 1000 Population	Prevalence Rate per 1000 Population	Prevalence Rate per 1000 Population	Prevalence Rate per 1000 Population
Orange, Person, Chatham Health District	1.53	20.72	1.41	16.99		
Durham County			7.49	74.91	11.01*	110.10*

*Based on number of blood tests rather than number of persons tested.

On the basis of the above table the prevalence of syphilis in the Districts in the white and colored decreased slightly in the two years, 1941 and 1942. In the District syphilis is thirteen times as prevalent among the colored as among the whites. In Durham County it is ten times as prevalent among the colored. Syphilis

is about five times as prevalent in Durham among both whites and colored as it is in the Rural District.

Using the serological test for syphilis taken on all selective service inductees and volunteers as an index of prevalence of syphilis in the 18-35 year age male group, we have the following table:

	1941		1942		1943	
	white	colored	white	colored	white	colored
	Prevalence Rate per 1000 Tested	Prevalence Rate per 1000 Tested	Prevalence Rate per 1000 Tested	Prevalence Rate per 1000 Tested	Prevalence Rate per 1000 Tested	Prevalence Rate per 1000 Tested
Orange, Person, Chatham Health District	10.9	95.1	19.2	109.9	23.2*	166.9*
Durham County	26.9	160.0	31.0	102.1	34.7*	217.4*

*Based on number of serological tests rather than persons tested.

The preceding table shows the difference between the amount of syphilis among the races to be less marked but shows the same difference between the rural District and urban County so far as amount of syphilis is concerned. The striking thing about this table is

that it shows a very definite increase each year in the amount of syphilis being found in the selectees, both white and colored.

Incidence studies have also been made and are represented in the following table:

	1941		1942		1943	
	white	colored	white	colored	white	colored
	Rate per 1000 Pop.	Rate per 1000 Pop.	Rate per 1000 Pop.	Rate per 1000 Pop.	Rate per 1000 Pop.	Rate per 1000 Pop.
Orange, Person,	0.07	0.8	0.09	1.45	0.11	1.76
Chatham						
Durham	...	...	0.28	4.67	0.24	7.11

By incidence is meant the number of persons who newly contract syphilis during the period specified. The increase in the incidence rate (or attack rate) may represent increased effort at case finding or it may represent an increasing amount of syphilis in our population.

The results of Epidemiological Investigation of Sexual contacts of Original Patients with Primary and Secondary syphilis in the Orange, Person, Chatham Health District and Durham County for the period 1941-1943 is shown in the following table:

	No. of Patients Interviewed with Primary or Secondary syphilis	No. of Contacts named	No. of Contacts examined	No. of previously undiagnosed cases of syphilis found among contacts examined	No of new Primary and Secondary cases found
Orange, Person,	107	171	150	97	44
Chatham					
Durham*	332	604	418	229	105

* 1942 and 1943 only.

The above table shows the results obtained by epidemiological investigation among contacts of infectious cases of syphilis. It would be difficult to conceive of any method as productive for case finding—particularly infectious cases as this one. And the infectious cases must be found and chemically quarantined while they are still infectious if syphilis is to be controlled.

STATE LABORATORY OF HYGIENE

Dr. John H. Hamilton, Director

For the first time in more than ten years we can report a decrease in the routine activities of the State Laboratory of Hygiene. This decrease in routine activities does not necessarily mean a decrease in the service which the laboratory is rendering to the public health

program. During the past year we have undertaken a number of new activities which are considered to be of positive value and which we believe will be more helpful through the years than the performance of routine service.

During the period—April, 1943 to March 31, 1944 the laboratory made 571,593 examinations of specimens. This is a decrease of 19.3% for the comparable period preceding when the total examinations of specimens made in the laboratory was 708,503. Of these examinations—377,174 were serological tests for syphilis from civilians for the current period as compared with 400,373 for the preceding period, a decrease of 5.6%. One hundred twenty-eight thousand, two hundred fifty-four were serological tests for syphilis from Selective Service Boards. During the

preceding period the laboratory made 234,409 serological tests for syphilis for Selective Service Boards, a decrease of 45% in this service. Although these decreases are startling, the total number of examinations made in 1942-43 are only slightly less than they were in 1941 when the laboratory made 575,312 examinations of specimens.

The amount of typhoid vaccine distributed from April 1, 1943 to March 31, 1944 was 558,626 c.c., which is 34.5% less than we distributed during the same period of 1942-43. It may be that the increasing trend toward the administration of typhoid vaccine by the intradermal method is a partial explanation for the decrease in the typhoid vaccine distributed during the current period. Since the intradermal method, particularly when it is used for the annual booster dose, calls for only 1/10 c.c. as compared to 1 c.c., only one tenth of the vaccine is required to immunize a given number of people when this method is substituted for the subcutaneous method. The relative freedom from reactions when the intradermal method is used should give it an increasing popularity with patients. This type of explanation, however, cannot be extended to include the decrease in the amount of smallpox vaccine distributed. During the period covered by this report smallpox vaccine was distributed in quantity sufficient to immunize 281,837—during the preceding comparable period 361,819 persons could have been protected, a decrease of 21.8%; however, the amount of smallpox vaccine distributed in 1943-44 was greater than the amount distributed in 1941.

With these decreases in activities as a background it is more than pleasant to report the increasing popularity of our Pertussis Vaccine. From April 1, 1943 to March 31, 1944—84,840 c.c. of our Improved Pertussis Vaccine were sold as compared with 48,150 for the preceding period, an increase of 76.2%. It is recalled that we make no charge for smallpox vaccine nor typhoid vaccine and that we must sell our Pertussis vaccine at a price sufficient to yield a small profit which can be used to help liquidate our outstanding

building bonds. Notwithstanding these facts, we noted decreases for typhoid vaccine and smallpox vaccine and a marked increase for Pertussis vaccine. It would seem that our customers are pleased with the results obtained from our Pertussis Vaccine. Unfortunately, only a small percent of the children who need protection are securing it.

An increase in the number of Pasteur Treatments can be reported. For the current period 797 antirabic treatments were distributed as compared with 474 for the preceding period, an increase of 47.1%. This increase is unquestionably due to the growing prevalence of rabies. Although we have been distributing antirabic treatment prepared according to the Semple Method for a period of approximately four years, to date we have received no report of any accident of antirabic treatment due to this product and only one report of the possible failure of the vaccine to protect.

There is a decrease of 16.6% in the number of Schick Tests distributed. There is a decrease of 5.4% in the amount of Diphtheria toxoid distributed—142,192 c.c. being distributed during the period April 1, 1943 to March 31, 1944. There is also a decrease of 2.2% in the amount of Diphtheria antitoxin distributed.

Financially the laboratory is in good condition. The marked decrease in routine activities were in those services for which the laboratory makes no charge. We had a 3.5% increase in the number of specimens of water examined in the laboratory, 7,388 analyses representing the work in this field of endeavor. Since most of these analyses were from samples submitted by public water supplies, the financial returns from this source will be somewhat increased over the previous period. Since the General Assembly in 1907 in creating the State Laboratory of Hygiene set up the schedule of fees to be collected from all public water supplies, this activity yields a little more than \$16,000 per year to the support of the laboratory. This act established the precedent that the laboratory must be partially self supporting. Our receipts from Pertussis Vaccine

and the Pasteur Treatments have also been increased with only slight decreases in the amount of funds coming from Diphtheria Toxoid and Diphtheria Antitoxin. The receipts from the sale of specimen containers will show a marked decrease but this is compensated by the fact that our expenditures are also decreased in direct proportion. We have been able to pay the interest on our building bonds and to retire outstanding bonds on schedule.

The laboratory has continued to participate in the evaluation studies of serological tests for syphilis which are conducted by the Advisory Committee of the United States Public Health Service. In 1943 our Kline Test had a sensitivity rating of 78% and a specificity rating of 100%—the control laboratory had a sensitivity rating of 65.6% and a specificity rating of 100%. Our Wasserman, the Eagle complement fixation test, had a sensitivity rating of 65.8% and a specificity rating of 100%—the control laboratory had a sensitivity rating of 73.9% and a specificity rating of 100%. A tabulation of the serological tests performed in our laboratory during the year 1943 showed that 11.6% of the specimens of blood examined gave positive serological tests. The following results were obtained—Classified by race and sex:

	No. Specimens	No. Positive	Percent Positive
White—Male	54,600	3,317	6.1
White—Female	101,046	3,555	3.5
Negro—Male	43,932	10,512	23.9
Negro—Female	81,477	15,693	19.2
Indian—Male	369	55	14.8
Indian—Female	1,056	72	6.8

Purpose for Which Specimens Were Sent

	No. Specimens	No. Positive	Percent Positive
Diagnosis	99,335	13,974	14.0
Check on Treatment	17,793	6,985	39.2
Prenatal	46,104	1,460	3.1
Marriage	18,610	904	4.8
Certain Occupations			
Cosmetologist	12,519	311	2.4
Midwife	1,019	106	10.4
Food Handlers	20,132	1,519	7.5
Domestic Servants	53,714	5,047	9.2
Teachers	3,348	158	4.3

During the past year the following special studies or investigations have been conducted:

1. The effect of water softeners on the deposit of calcium in teeth and bones—Preliminary report not yet published.
2. Vitamin C content of North Carolina cooked foods—To be published in the North Carolina Journal.
3. Nutrition Studies—Report not yet prepared.
4. Nutritional Aspect of Toxemia Pregnancy. Study in progress.
5. Development of a Medium for the Delayed Culture of the Gonococcus—Published in Journal of Laboratory and Clinical Medicine—April, 1944.
6. Gonococcus Culture Studies to be published in the Journal of Bacteriology.
7. Distribution of Rickettsial Infection in North Carolina—Study in Progress.

The past year has witnessed considerable improvement in the local laboratories which have been approved for the making of serological tests for syphilis under the State Marriage Law. These laboratories have not only improved their physical equipment, but have improved the quality and increased the scope of the services which they are rendering. Sixty-four of these laboratories reported the making of 335,332 serological tests for syphilis during the calendar year, 1943. During this year the State Laboratory of Hygiene performed 387,039 tests on civilians and 175,002 tests for Selective Service Boards. Assuming that there are no duplications in these reports, their combined total of 897,373 serological tests would represent a little more than one-fourth of the population of the State. Since serological tests for syphilis are only one of many activities of these approved laboratories, it is not difficult to visualize the great amount of service which they are rendering to the State and the possibilities for increasing both the quality and the quantity of service which these laboratories can render.

During the past year a representative of the State Laboratory of Hygiene has visited each of the approved laboratories on at least one occasion and several of them two or more

times. A recent inspection formed the basis for the rating of 63 laboratories as follows:

	Ex- cellent	Good	Fair	Poor	Very Poor
Technical work	16	30	17	0	0
Equipment	20	23	16	4	0
Light	18	26	10	5	4
Refrigeration	31	21	8	0	3
Sterilizing facilities	13	26	19	5	0
Cleaning facilities	16	20	17	10	0
Space	21	23	13	6	0
FINAL RATING	14	28	19	2	0

Workers in ten of the approved laboratories have been instructed in gonococcus culture procedures.

A conference of local laboratory workers was called at the State Laboratory of Hygiene on April 12 and 13 of this year. Eighty-four workers from all parts of the state attended. We were assisted by Dr. Norman Conant, Duke University, who spoke on "Laboratory Diagnosis of Fungus Diseases;" Dr. Wm. Fleming, University of North Carolina, who spoke on "Serological Tests for Syphilis;" Dr. John Larsh, University of North Carolina, who spoke on "Intestinal Parasites;" Dr. H. F. Fraser, National Institute of Health, who outlined the services of that institution; and by Dr. Milton J. Rosenau, School of Public Health, University of North Carolina, whose subject was "Laboratory Workers in the Public Health Program." Numerous members of our staff assisted in the conduct of the conference.

Our approved laboratories can be of great assistance in combating many of our acute infectious diseases. In communities where there are no existing facilities for the examination of milk an approved laboratory may materially aid in our milk control program. Since most of these laboratories are supported by local funds, it is improbable that they will be subject to changes in state or national economics.

It would seem that the laboratory has had more than its share of personnel problems. During the past year we have had 11 resignations. We have had three vacancies existing

for more than a year and at the present time have seven. If there had been no decrease in our routine activities our decreased personnel might well have been a tragedy.

With the facilities available to it the laboratory has endeavored to contribute as much as possible to the public health program. The members of the staff who have resisted the temptation to leave have manifested loyalty and devotion which has been heartening. With them we can look forward with confidence to a brighter day and a better world.

DIVISION OF SANITARY ENGINEERING

Mr. J. M. Jarrett, Director

The Division of Sanitary Engineering has had its staff further reduced during the year, because of resignations for more lucrative positions, and entrance into the Armed services of four of its employees. All of these employees were in key positions, and this loss has curtailed the activities of this Division. The Division has also had a change of directors during the year, and the program is now being reorganized along lines more closely related with the revised program of Local Administration.

The Division now consists of the following personnel: Director, four engineers, nine sanitarians, and four secretary-stenographers. We have secured from the Public Health Service, through lend-lease, three engineers, two bacteriologists, and one sanitarian to augment the above staff, and to assist in war activities. One engineer from another division is also assigned to this office. Although the Public Health Service personnel work under the technical supervision of the Division of Sanitary Engineering, their activities are confined mainly to local health units which have been affected by military installation, and to units where local personnel of sufficient number and experience is not available to adequately handle sanitation problems within these counties.

The activities and responsibilities of the Engineering Division have increased considerably because of the war impact, and when we combine this with routine promotional and

law enforcement duties assigned to this Division for a number of years, the field of endeavor becomes very broad, and includes some phase of practically everything in the field of sanitary engineering. A list of some of the many activities engaged in during the year is as follows:

I. Engineering.

- (a) Municipal water treatment and sewage disposal problems.
- (b) Protection and inspection of private water supplies.
- (c) Promotion and inspection of private sewage disposal facilities.
- (d) Construction of sanitary privies.
- (e) Stream sanitation and industrial waste problems.
- (f) Assistance with Water Works Operators' Schools, in cooperation with the University of North Carolina.
- (g) Certification of water plant operators.
- (h) Promotion of and assistance with post-war planning.
- (i) Security Facility Program in cooperation with the Public Health Service and Office of Civilian Defense.
- (j) Certification and inspection of Interstate water and milk supplies used on Interstate Carriers.
- (k) Review of plans for new water treatment plants, sewage disposal plants, pasteurization plants, dairies, and abattoirs.
- (l) Typhus Control through the rat-proofing of buildings.
- (m) Shellfish sanitation, inspection and certification for Interstate Commerce.
- (n) Problems relating to incinerators and municipal garbage disposal.
- (o) Recruiting and training of sanitation personnel, both State and local.
- (p) Promotion, inspection, and design of abattoirs.
- (q) Assistance to communities with Federal projects, and assistance to individuals and cities on priorities requests to the War Production Board.

(r) Preparation of technical bulletins, ordinances, etc.

(s) Vessel inspection. (Made by the Public Health Service Lend-Lease Engineer for the Service).

(t) Administrative problems in connection with securing draft deferments for personnel employed in municipal water and sewage treatment plants, and in local health units.

II. Sanitation

- (a) The training of local sanitarians.
- (b) Inspection of and State Law enforcement as related to:
 1. Hotels
 2. Cafes
 3. Tourist homes
 4. Tourist camps
 5. Summer camps
 6. Meat markets and abattoirs
 7. Jails and prison camps
 8. State and private institutions
 9. Schools
 10. State Bedding Law
- (c) Conducting of foodhandling courses in cooperation with local health units and other State agencies.
- (d) FHA inspections of water and sewerage improvements for private homes.
- (e) Pasteurization plant and dairy inspections.
- (f) Nuisance complaints.
- (g) Consultation with local Health Officers, outside agencies, and other State Departments on matters relating to sanitation.

It will be readily seen that to do justice to such an array of activities would require many more men than are now employed.

Thought is being given at present to a study of ways to improve the functions and efficiency of the Division. As mentioned above, the Division's activities are being reorganized along lines designed to afford closer cooperation with local health units, and to coordinate the Division activities more closely with the revised plan of Local Administration; consequently, the personnel from this office has been assigned to offices of the three district

medical directors of Local Administration, and policies established which will tend to expedite the work of this Division with the Division of Local Administration. A diagram of the present organization of the Division of Sanitary Engineering, and also a diagram showing the relation of the Division of Sanitary Engineering to the Division of Local Administration are attached as Figures 1 and 2.

The following briefly outlines some of the results obtained during the past year on the activities covered:

Water and Sewerage. Water plants under construction last year, or started during this year and completed, are Elkin, Fayetteville, Wilmington, New Bern, and Fontana. The town of Creedmoor completed, under the Latham Act, a new dam, an impounding reservoir, and a project has been submitted to double the capacity of the filter plant, construct a new sewage treatment plant, and extend water and sewer lines. These additions have become necessary because of the town's close proximity to Camp Butner, and the additional load placed on existing facilities because of the increase in population. A new sewerage system has been completed at Boonville, and one at Wrightsville Beach is under construction. The sewerage system at Manteo which was started last year has also been completed. A new sewage treatment plant has been completed at Jacksonville. Sewer and water extensions are now under construction at Fayetteville, Wilmington, New Bern, and Monroe. There are now 843 public water supplies in the State, and 164 municipal sewage treatment plants. Thirty-six percent of the State population is now served from municipal water supplies.

Post-War Planning as it Relates to Engineering and Sanitation. Considerable emphasis has been placed on post-war planning by a number of outside agencies, as well as through the efforts of the engineers of this Division. Municipalities have been advised to employ their engineers, and begin studies. Projects now under consideration with which we are familiar will involve several million dollars worth of improvements.

Many facilities have been allowed to operate without anything except emergency repairs and upkeep, and have now reached the stage where major repairs and extensions will be necessary within a few more years. Recommendations have been made by this Division, in a number of instances, calling attention to needed improvements.

The proposed post-war projects are also designed to absorb some of the post-war unemployment which is bound to come during the years of readjustment following the war. Among the towns now making definite plans, some of which have already employed their consulting engineers, are Gastonia, Asheboro, Charlotte, Greensboro, Durham, Salisbury, Asheville, Hickory, Shelby, Monroe, Mount Airy, Mooresville, Rocky Mount, Kinston, North Wilkesboro, Burlington, Graham, and Albemarle. Projects will consist of additions to present water plants, improvements and additions to existing sewage treatment plants, completion of sewage treatment facilities begun several years ago under WPA but never completed, extension of water and sewerage systems, construction of incinerators, and other improvements of a sanitary engineering nature.

Recruiting and Training of Personnel. In addition to routine activities, with supervision and assistance to towns on water and sewage, the engineers also participated in an eight-weeks' course of training for water and sewage plant operators at the University of North Carolina, and have also assisted with the training of local sanitarians. Considerable time has also been required to answer correspondence, make personal appeals to draft boards, and otherwise handle administrative problems regarding the deferment of water plant operators and sanitarians employed in local health units.

Shellfish Sanitation. The program of shellfish sanitation is one of the most important activities of the Division of Sanitary Engineering, and during the past year has been carried on under difficult conditions. The engineer in charge of this program for a number of years resigned to accept a commission with the U. S. Army Sanitary Corps, and is now stationed in

South America. He was replaced by a county sanitarian who had had some experience in shellfish sanitation; however, it was necessary that the Principal Engineer of this Division devote considerable time to acquainting the new man with many details of this work. This program in the past has been carried on more or less as a separate activity in the field of food sanitation. The laws under which we work are laws of the State Department of Conservation and Development, with the State Board of Health cooperating. It has been necessary to detail a man to this particular area to devote his full time to this activity. The sanitarian referred to above who took over this work has now been drafted by the Army, after strong pleas were made from this office regarding the essentiality of his work, and at the present time this activity is going through another period of reorganization, as we transfer one of our other sanitarians to this activity. It will be necessary to give him considerable assistance, and will require time to acquaint him with his new duties. Despite the above, the shellfish sanitation program has continued to progress. A total of 1,019 inspections of shellfish growing areas, oyster, clam, and crabmeat packing plants have been made by the sanitarian in charge of this program. In addition to the routine activities, the engineers of this Division, with the assistance of representatives of the Public Health Service, have made a complete sanitary survey of all shellfish growing areas along the coast of North Carolina. This work was deemed necessary as a result of the increase in the quantity of sewage pollution reaching the shellfish growing waters from military establishments, industrial plants, and from the tremendous increase in population in towns located adjacent to our coastal waters in which shellfish grow. During the survey, we had close cooperation from the Navy and Army authorities concerned, and have secured valuable information regarding the types and number of sewage treatment plants located on military reservations which discharge wastes into the shellfish growing waters of North Carolina. This sanitary survey has focused our attention on the need

for more close supervision, including bacteriological analyses of the waters concerned. It is planned in the future to inaugurate a bacteriological survey jointly with the Public Health Service, in order that we may secure correct information before making recommendations for a restriction of certain growing areas to the State Department of Conservation and Development. Furthermore, as a result of these investigations, one bacteriological survey has already been made in the waters of Bogue Sound, adjacent to Morehead City, and sampling points have been established for future surveys just mentioned. One outbreak of Typhoid Fever, attributed to clams, originating in North Carolina and reported in New York, has also been investigated.

Security Facility Program. This program, carried on jointly by the U. S. Public Health Service, the Office of Civilian Defense, and the Division of Sanitary Engineering, consists of inspections and recommendations to municipalities which have had their water plants classified as essential to the war effort. A number of inspections have been made of these facilities, reports submitted, and assistance given in inaugurating measures to prevent sabotage and to further protect the quality of the supply being furnished consumers. The information concerning these supplies is restricted from publication, but excellent cooperation has been received from all towns concerned. The State Sanitary Engineer also served as Water Works Coordinator for the Office of Civilian Defense in North Carolina.

Typhus Control Through the Rat-Proofing of Buildings. This activity is relatively new in North Carolina, and when originally established, the engineer in charge of the program worked under the direction of the Division of Epidemiology, although funds for financing the work were included in the Division of Sanitary Engineering budget. At the time the Division was reorganized in October, 1943, this work was transferred from the Division of Epidemiology to the Division of Sanitary Engineering. At the present time the staff consists of one engineer and one sanitarian. In July, 1943, two trucks were secured through

the Division of Purchase and Contract from the Welfare Department to be used in the Typhus Control Program. These trucks were equipped with all of the necessary tools and machinery required for cutting metal and doing carpentry and masonry work. To completely equip these trucks, the sum of \$800 was allocated through the War Activities Health Unit. The program, as originally set up, consisted mainly of poisoning and trapping campaigns in various towns throughout the State where Typhus Fever was prevalent, the object being to kill as many rats as possible, and as quickly as possible, thereby retarding the spread of Typhus Fever. As this program has developed it has become evident that control of rats through poisoning and baiting, alone, would not adequately control Typhus Fever. Studies by the Public Health Service and by other states doing this work have indicated that the main objective is to break up the close association between rat and man; consequently, a program designed on keeping rats out of buildings through rat-proofing has been determined to be more effective, more permanent, and less expensive in the end. Baiting programs, if they are to be effective, must be repeated at least every six months; therefore, when the Division secured the two trucks mentioned above, with their equipment, a program designed on moving into a town, securing the adoption of a rat-proofing ordinance, and the employment of local sanitarians to supervise and carry on the work, was begun. The engineer and sanitarian from this Division cooperate with the town, assist in the promotion activities, and supervise the work until it is ready to be taken over entirely by local authorities. Rat stoppage programs on a small scale have been inaugurated in Laurinburg, Wilson, Clinton, Oxford, Snow Hill, Bladenboro, New Bern, and Raleigh. In Raleigh, the sum of \$6000 has been appropriated, a truck has been secured, and the program at the present time is being operated through the local Health Department. An Ordinance was not adopted in Raleigh, however, and this, to a certain extent, does not add emphasis to the necessity for this work

to be done on a city-wide scale. At the present, it is being worked on a cooperative basis with local merchants. A well-designed and well-organized program has been inaugurated in Concord and Wilmington during the past year. In both of these towns the Public Health Service has sent in supervisors from their Typhus Control Unit in Atlanta, and they, together with the men from this Division, have established these programs on an excellent basis. The sum of \$7000 was appropriated by the town of Concord, part to be used as a revolving fund for the purchase of materials, and the balance to be used for the employment of a sanitarian by the local Health Department to devote his full time to Typhus Control work. The same program was adopted by the officials of Wilmington, and the amount of \$5000 was appropriated for this work. In both of these cities, ordinances were adopted by the governing bodies requiring that all buildings be rat-stopped. In addition to these programs of rat-stoppage, the Division has also cooperated with 32 towns in carrying out rat poisoning campaigns. The cost of these programs has been borne by local citizens or by the town, and the cost of the rat poison distributed in these 32 towns amounted to \$18,621.13. There were 137 cases of Typhus reported from 26 counties of the State last year, and 9 deaths.

Incineration and Garbage Disposal. A number of requests have been received by the Division for assistance in securing priorities for the construction of incinerators, but because of the War Production Board's restrictions on critical materials, no incinerators have been constructed. We have advised the towns, however, and in several cases have recommended sanitary land-fill methods of garbage disposals. It is believed that as part of the post-war planning a number of towns will construct incinerators and begin to more adequately handle garbage disposal problems, as soon as materials are available.

Certification of Interstate Water, Milk, and Shellfish Supplies. This activity of the Division is an old one, but has far-reaching effects. The Division of Sanitary Engineering cooperated

with the Public Health Service in making inspections of all watering points and water supplies furnished to Interstate Carriers within the State. Standards have been established by the Public Health Service regarding the sanitation of watering points, as well as sources of supplies. Inspections have been made of all of these during the past year, some of them in cooperation with Public Health Service engineers, and others by engineers from this Division working on routine activities. This certification also applies to milk supplies used by Interstate Carriers. All milk taken on trains in North Carolina comes under the supervision of the Public Health Service, and inspections and surveys of these supplies are made by the State Board of Health for certification. All shellfish shipped in Interstate Commerce must also bear permit numbers received from the State Board of Health, and be checked at periodic intervals by the Public Health Service. Revised lists are issued regularly and distributed throughout the United States by the Public Health Service, listing all the names of the shippers who have permits, giving their permit numbers. Revised lists giving names and permit numbers of shellfish distributors in North Carolina are also distributed by the State Board of Health to local Health Departments within this State. In this way, a close watch is kept over this food supply. Should outbreaks occur, it becomes much easier to trace the source of trouble.

Abattoir Design and Inspection. The State-wide meat market and abattoir law was passed by the State Legislature in 1937. This law authorized, directed, and empowered the State Board of Health to prepare and enforce rules and regulations governing the sanitation of meat markets, abattoirs, and other places where meat and meat products are prepared, handled, stored, or sold. Regulations were first distributed in 1939, and the program was put into effect. However, because of a shortage of veterinarians in certain sections of the State, and the fact that a certain amount of educational work was necessary, the abattoir program has not progressed very rapidly. After the beginning of the war, with the subsequent

creation of Federal agencies to establish price ceilings, control black market operations, ration commodities, etc., considerable emphasis was placed on the abattoir program. The State Department of Agriculture, the War Food Administration, and also the OPA have been very much interested in controlling black market operations in meat. A cooperative program was worked out between these agencies and the State Board of Health in which it was decided that before a slaughterer could receive a permit from WFA, it would be necessary that he meet the minimum sanitation requirements of the State Board of Health. One engineer from this Division has devoted practically his entire time to the preparation of small standard stock plans, making engineering investigations with regard to waste disposal from abattoirs, preparing engineering specifications, and consulting with municipal officials and other consulting engineers employed by municipalities in working out the standards of design and construction to be followed. Our District Sanitarians charged with the enforcement of State laws governing food-handling establishments have also aided greatly in this work, and have given considerable assistance to local health departments in promoting and following up the program of sanitation of these places. The engineer assigned to this work has also been in close contact with the War Food Administration and the office of the War Production Board, and has assisted individuals in filing applications and securing priorities for critical materials needed to construct abattoirs. At the present time, there are 93 abattoirs in the State. It is possible that some of the older ones have ceased operations, or have not secured permits to operate because of insanitary conditions. During the past twelve months, 27 new abattoirs have been completed, approved, and put into operation. There are, no doubt, other new abattoirs which have been completed that have not yet been reported to this office. There are at least 12 or 15 others now under construction to be completed at an early date. Quite a number have filed applications and are in the process of preparing plans and securing nec-

essary materials for construction. At the present time, there are five municipally owned and operated abattoirs, and one county owned and operated abattoir in North Carolina. Another city has an abattoir nearing completion, and one county has been authorized to construct an abattoir, but has not yet begun work. All plans for the construction of new abattoirs are submitted to this office for review and approval. This is in accord with requirements of the law. One of the most difficult engineering problems in connection with this program has been the determination of the type of waste treatment plant needed. Quite a few of the abattoirs constructed discharge their waste into the municipal sewerage system, but others which are located away from municipal sewerage systems are required to install their own treatment facilities. The nature of the waste makes it very difficult for them to be treated, and this problem has required considerable time from the engineer detailed to this duty.

Milk Sanitation. As mentioned above with regard to the shellfish sanitation program, the milk sanitation program is one of the most important activities of the Division of Sanitary Engineering. It has also suffered severe handicaps during the past year. As reported in previous years, considerable work has been done by the Division of Sanitary Engineering in promoting the adoption of milk ordinances, developing a program of dairy farm construction and sanitation, and improving pasteurization plants and methods, which has placed North Carolina high among the list of states in accomplishment. Milk control in North Carolina is under local health units and local municipal governing authorities. There is no State milk law. The duties of the Division of Sanitary Engineering, therefore, have been concerned with assistance to local health departments and municipalities in the promotion of the proper type of ordinance, assistance to sanitarians in making surveys, certifications to other towns regarding milk supplies coming from distant points, technical advice in the way of preparation of plans, approval of plans for pasteurization plants, and assistance

to local health departments in enforcement when requested.

Because of the war impact, it has been necessary to bring milk into the State from outside sources, since the supply produced in North Carolina could not meet the demand. Immediately following the entrance of this country into the war, and the establishment of many military camps in this State, an attempt was made to standardize or develop a standard program in such a way that assistance could be given military authorities, as well as local health authorities, concerning emergency milk supplies. However, a letter from the Surgeon General of the Public Health Service to all states, and to representatives of the industry, suggested that grading provisions be eliminated for the duration of the war, and this has probably had more weight on destroying our standards previously attained in this State than any other one thing. Since the Public Health Service Standard Milk Ordinance has been developed on the principle of grading, in order that the consuming public might know just what they were getting, the suggestion that this grading be eliminated and the word "Pasteurized" substituted has caused a breakdown in our milk program in certain sections of the State. This letter came out in 1942, but a considerable number of conferences were carried on by the State Health Officer and the Sanitarian in Charge of the Office of Milk Sanitation during the past year with Army officials and a committee appointed by the Governor to study the milk situation in North Carolina.

Two local health departments, Durham and Fayetteville, revised their standard grading ordinance to allow, in Durham, pasteurized milk to be sold, and in Fayetteville, milk to be labeled Type III, Army Contract.

Because of the severe shortage of milk, the plants have been willing to pay higher prices to secure the necessary supplies. In some localities the price has remained the same for low grade, or ungraded milk, as it has for grade A milk. Where such a situation has developed, there is not much incentive to a dairyman to continue to maintain sanitary standards, since

such maintenance does cost him money. If he can secure the same price for his product, he can find many excuses as to why he cannot maintain his previous standards.

It is also our information that in one of the towns mentioned above, only grade A milk is supplied the home trade. All milk sold in eating establishments bears the Army type label, since the Army had requested the local officials to do this for them, their excuse being that they did not want the soldiers to drink one grade of milk in camp, and another grade in town. Consequently, some grade A milk in this particular town is being mixed with ungraded milk, and is being labeled Army Type III.

The Division of Sanitary Engineering has also been very active in assisting with the sanitation of the Coble milk shed in Lexington. This milk supply has developed enormously within the last few years, and at the present time approximately 35,000 or 40,000 gallons of milk a day is being produced and shipped from this shed. Since this milk goes to a number of other plants throughout the State, and also to Army camps within and outside of North Carolina, one of the lend-lease engineers secured from the Public Health Service has been detailed to this particular shed to assist the local authorities with their program. The engineer from this Division made a complete field survey, on this particular shed, of all grade A producers located in 21 counties in North Carolina, and 17 counties in Virginia. Approximately 400 inspections were made during the survey.

Surveys were also made by one of the Public Health Service lend-lease bacteriologists on 14 laboratories that were doing milk work within the State to check on equipment and technique. A standard type of report form was the Examination of Dairy Products. Lists of equipment necessary for milk analyses were compiled for several health department laboratories. A number of sanitarians were given personal instruction in bacteriological technique. The standard type of report form was also submitted to a number of city and county health departments, with the request that they

report their bacteriological analyses on this report form.

During the year, also, a milk laboratory was established at Lexington, in cooperation with the local health department. At the present time, one of the lend-lease bacteriologists from the Public Health Service is assigned to this laboratory, as we have been unable to secure a qualified person in North Carolina for this work.

Quite a number of special investigations were made of milk supplies going to military reservations, at the request of the military medical officers. These reports covered bacteriological and sanitary survey of various plants. A number of requests have also been received from military authorities for assistance in checking post-pasteurization contamination, which has developed in some of the plants because of the enormous overload and improper sanitation methods within the plant.

Also, during the past year sanitary surveys were made of all State institutional dairies, as well as dairies run by various schools, orphanages, and hospitals. It was also necessary that representatives of this office make a survey of supplies in Christiansburg, Roanoke, Abingdon, and Rurau Retreat, Virginia, for the purpose of determining the grade of milk coming into this State. Because of the dual responsibility and state laws in Virginia, it was not possible to secure surveys direct from the State Health Department of Virginia.

One outbreak caused by infected milk occurred in North Carolina during the year. This was investigated by a bacteriologist and sanitarian from the Division of Sanitary Engineering. A leaky cooler, cross-connected with an unsafe water supply, was the cause of contamination of the milk which was being served at a military post in the State. This has been corrected.

A request was made of the Public Health Service for a detailed study of the Office of Milk Sanitation of the Division of Sanitary Engineering by the new Director of the Division, soon after he reported for duty. It is planned in the future to use this report as a guide in determining the program to be car-

ried out by this Division in regard to milk sanitation.

At the present time, there are 107 pasteurization plants in the State; 208 cities now have the Standard Milk Ordinance in effect, and 40 counties have the Ordinance county-wide.

The sanitarian in charge of the Office of Milk Sanitation resigned on March 15 to accept a more lucrative position with the Biltmore Dairies in Asheville. This has made necessary the reassignment of sanitarians and engineers detailed to milk work, and, at the present time, the State Board of Health, Division of Sanitary Engineering, has one sanitarian assigned to milk, and one engineer and one bacteriologist lent from the Public Health Service. With the enormous volume of work necessary, particularly during these pressing times, it is absolutely impossible for these three men to adequately handle this most important problem. One year ago, there were four sanitarians and one engineer, part-time, working on this program.

During the year, we have also lost the services of the mobile milk laboratory which was assigned to this State by the Public Health Service. Plans are now under way to secure a mobile laboratory for the State Board of Health to be used not only on milk, but also on water and sewage problems, and shellfish sanitation. It is sincerely hoped that such a trailer laboratory will be made available during the coming year, and that personnel will be found to operate it. Such a unit would be of inestimable value to the sanitary engineering work of this Division.

Stream Sanitation. As has been previously reported, stream sanitation in North Carolina is assuming an ever-increasingly important role. Funds and personnel have not been available for detailed work on stream sanitation studies or improvements; however, the engineers of this Division have received a number of requests, and have assisted municipalities and private industries with industrial waste problems which eventually affect our streams in this State. Quite a number of requests have been received from industries outside of North Carolina for information relative to possible

sites in this State, and it is anticipated that a number of these industries will move to North Carolina following the war. A number of our municipal sewage treatment plants are now overloaded, and serious difficulties have been experienced in some localities with the treatment of industrial wastes through municipal sewage treatment plants which were not designed to care for this extra load, with the end result being the further pollution and damage to the receiving stream.

All of this focuses attention on the fact that some definite move should be made by the State Board of Health, and other agencies concerned, to begin work on stream sanitation in this State. In this connection, several conferences have been held during the year with representatives of the Tennessee Valley Authority, State Department of Conservation and Development, and State Planning Board for the purpose of considering a plan which might be put into effect in those counties in western North Carolina which lie within the bounds of the Tennessee Valley Authority. The Tennessee Valley Authority has offered its cooperation, and it is believed that this willingness to cooperate, if taken advantage of by the State Board of Health, and other agencies concerned, will make it possible for us to inaugurate, on a small scale, an experimental program which might later be developed to cover the entire State. Future budget requests from the State Board of Health should include requests for additional engineers and chemists to be added to the staff of the Division of Sanitary Engineering to study the stream sanitation problem.

General Sanitation. The sanitarians assigned to the enforcement of State laws, the responsibility of enforcement having been the duty of the Division of Sanitary Engineering for a number of years, have devoted most of their time to sanitation of public eating places, meat markets and abattoirs, tourist homes, tourist camps, prison camps, jails, State and private institutions, and the enforcement of the State Bedding Law.

As will be seen from Table 1, and as has been mentioned above, since October the dis-

strict sanitarians have been assigned to the offices of the medical directors of Local Administration. These men work in close cooperation with local health units, assist in the training of local sanitation personnel, assist local health departments with the more difficult court cases, and make surveys and appraisals of the work being done by local sanitarians, in order that the State Board of Health might be advised of the degree of law enforcement being secured through the local health departments.

Numerous requests have been received from military authorities for detailed inspections of public eating places located in military areas and the district sanitarians from this office have worked with the authorities at Cherry Point, Goldsboro Air Base, Camp Davis, Fort Bragg, Camp Mackall, Camp Sutton, Greensboro Air Base, Charlotte Air Base, Camp Butner, and Camp Lejeune. In cooperation with the Public Health Service and the office of War Food Administration, a program of inspection of industrial plants, with regard to eating facilities in these plants, has been started.

The sanitarians, because of their close contact with local officials, have also been required to devote considerable time in appearing before local draft Boards in the interest of securing deferments for local sanitation personnel.

One man has been assigned to the inspection and enforcement of the State Bedding Law. One of the other men previously assigned to this work entered the armed services, and he has not been replaced. This has made it difficult for one man to cover the entire State and carry on his work with the efficiency shown heretofore. However, as will be seen from Table 3, the total number of places inspected, bedding condemned, and prosecutions compare favorably with those previously reported. The law requires that all bedding bear a stamp purchased from the State Board of Health, and that bedding also be tagged showing its true contents. During the past year, \$15,165.49 worth of bedding stamps and bedding licenses were sold by the State Board of

Health, with a total of 58 sterilizing licenses and 50 manufacturing licenses being issued. The money received from the sale of these stamps is used to pay the personnel employed to enforce the law.

Rural sanitation activities or enforcement of the State Privy Law, which heretofore has been an outstanding activity of the Division of Sanitary Engineering, has been greatly curtailed for several reasons. Relief projects in effect during the past several years have been discontinued. Restrictions placed on lumber and other critical materials by the War Production Board have also seriously hindered the progress of this work. A few counties are maintaining their programs, however, and during the past year approximately 3,000 sanitary privies were constructed in seven eastern counties. This activity also will require considerable attention and concentrated effort when the war is over and materials are available, as many of the privies constructed during the past five or six years will be in need of repairing or rebuilding.

Conclusion. From the above list of activities engaged in, and results accomplished during the past year, it will readily be seen that despite the fact that the Division was seriously hampered through the shortage of technical and professional personnel, a considerable volume of work was done. Until adequate personnel can be secured to fill the vacancies now existing in the Division, and to develop new activities which should be carried on as part of the work of the State Board of Health, it will not be possible to do more than routine work in the coming year.

A compilation of the total number of inspections made during the period covered by this report is attached as Figure 3.

TABLE III

COMMUNITY SANITATION

No. privy inspections . . .	146
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MILK SANITATION

No. dairy farm inspections	1,285
No. pasteurization plant inspections	303

MUNICIPAL WATER

No. municipal water plant inspections	471
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MUNICIPAL SEWERAGE

No. municipal sewerage system

inspections 331

PRIVATE WATER

No. private water supply inspections 117

PRIVATE SEWERAGE

No. private sewerage inspections 163

CAFE AND HOTEL SANITATION

No. cafe inspections 3,110

No. hotel inspections 263

**MEAT MARKET AND ABATTOIR
SANITATION**

No. meat market inspections 1,440

No. abattoir inspections 603

SHELLFISH SANITATION

No. shellfish inspections 1,019

SCHOOL SANITATION

No. school inspections 195

MISCELLANEOUS

No. jail inspections 75

No. summer camp inspections 28

No. prison camp inspections 15

No. State institution inspections 74

BEDDING

No. retail places inspected 1,059

No. manufacturing plant inspections 1,614

No. pieces bedding condemned 5,852

No. waste dealers 18

No. prosecutions 8

DIVISION OF ORAL HYGIENE

Dr. E. A. Branch, Director

The Oral Hygiene Division's slogan, "Prevention Through Education," is not only incorporated in the Seal of the Division but is the motif that coordinates all phases of its program. The value of education in Public Health and the benefits derived from the prevention of disease are more fully recognized and appreciated in this time of emergency than ever before.

Like all other branches of health service, the Division of Oral Hygiene has suffered severe losses in personnel. However, the remaining staff members have redoubled their efforts and are waging an effective war against ignorance and disease as related to dental conditions.

In presenting the work of this Division we wish to give a report of activities for a typical month. We have selected the month of February, 1944.

During February the eighteen school dentists on the staff worked in twenty-five counties and in eighty-four schools. In their 246 classroom lectures the dentists instructed 9,923 children in the care of their teeth. The dentists inspected the mouths of 8,824 children, making the necessary dental correction for 4,071 underprivileged children and referring the others, by means of postal cards mailed to their parents, to their own dentists.

The school dentists also distributed to the teachers for classroom use approximately 10,000 sheets of mouth health education material. They were instrumental in having copies of our teacher's handbook sent to scores of interested teachers.

In February the dental health puppet show was presented in 58 schools and was enjoyed by 25,599 children. Hundreds of these children wrote letters to Little Jack, the hero of the show, and received answers to their letters.

During this month two issues of "Jack's Travelogue," a dental health news release, were published and sent to the schools to be incorporated in their school papers or to be

posted on the classroom bulletin boards. We believe that the incorporation of this health message in the school papers is most worthwhile for, in this way, parents, as well as children, are reached. The "Travelogue" has a circulation of approximately 45,000.

Encouraging and convincing proof that the educational program of the Division of Oral Hygiene is stimulating widespread interest in and desire for information on the subject of dental health is furnished by the many requests for material and help. During the month on which we are reporting the following materials were sent out in response to requests.

1. Sets of posters to be used for the opening of a new County Health Department, in a school exhibit and in a teachers' conference.
2. Handbooks, "Teaching Mouth Health in North Carolina," for classes in Health Education at the Woman's College and Duke University.
3. 127 packages, each containing 50 copies of the "Mouth Health Catechism" to dentists in private practice for distribution to mothers.
4. 12 packages, 50 each, of "Mouth Health Catechisms" to County Health Departments to be used by the nurses in their home visits and to be used in the pre-school clinics.
5. Mouth Health Education material (booklets, mimeographed sheets, suggestions for assembly programs, et cetera) to many individual teachers throughout the State for use in their classrooms.
6. Descriptions of the plan and set-up of our program and samples of all of our Mouth Health Education publications to dentists and public health workers in several other states.

Another feature of the educational program is the dental health museum, known as "Little Jack's Fair," in the Oral Hygiene Building. During the month of February this was visited by two elementary grades, four girl scout troops, a group of student teachers,

a group of teachers, public health workers from this and other states and many children in smaller groups.

The Division of Oral Hygiene believes that progress is being made in the attainment of their goal, the prevention of dental diseases and systematic diseases of dental origin. This is borne out by the fact that in North Carolina 85 percent of the children have been found to need dental attention while the figure for the country as a whole is 95 percent.

DIVISION OF INDUSTRIAL HYGIENE

Dr. T. F. Vestal, Director

Medical Activities. This year's work has of necessity been almost entirely confined to those industries wholly, or almost wholly engaged in war work. Chief among these are the mica industry, the asbestos textile industry, the munitions plants, and the shipyards. Tuberculosis case finding work has been carried on among a rather wide range of other industries of varying size and widely distributed in order to obtain a better cross section of the incidence of the disease throughout the various industries of the state. This work was in progress at the close of last year's report and was continued until July 1943. A total of approximately forty-two thousand cases were x-rayed during the entire program. Twenty-five individual plants were included representing six types of industries in seven counties. These counties extend from the sea coast on the east to the crest of the Blue Ridge in the west. One and one-half per cent of the employees examined gave x-ray evidence of pulmonary tuberculosis. Roughly one-half of these appeared to be active from the x-ray standpoint. Many of these have since been found to show tubercle bacilli in the sputum. However, the greater per cent of the cases found were in the minimal and moderately advanced stages, while relatively few were found in the advanced stage, and an even smaller number with cavitation. We are of the opinion that industry offers an excellent field for the detection of those cases best suited for satisfactory treatment.

With that thought in mind our examining unit has been revised and brought up to date by the addition of a 4"x5" photoroentgen unit which we hope to use for tuberculosis case finding purposes as time will permit. This addition of new equipment may also be used for screening purposes in the examination of employees of the dusty trades. Since the miniature film is much cheaper than the full size conventional one, this effects a substantial saving of material, and at the same time provides us with a stereoscopic pair of films in each case instead of the usual single flat film. This is of great advantage in the satisfactory chest examination of certain individuals, especially women. It will be noted that much time and effort have been expended in the examination and study of employees in the asbestos industry. Many of these are women. It is here that the stereoscopic film is of inestimable value. This industry presents a very real occupational hazard. We have devoted a great deal of study to its solution in our own industries, and have also observed it in other states as well. Research work is now in progress in a number of places, and much is yet to be learned. Additional material will no doubt be available in the not too distant future.

The munition plants and shipyards have claimed attention from time to time. The assistance of various members of our staff has been called for on numerous occasions. In order to make certain that our plants were receiving standard protection and were conforming to accepted safe procedures as practiced elsewhere, we obtained the services of one of the arsenal crews provided by the U. S. Public Health Service. This crew was made up of two physicians and two engineers who visited these war plants with us and rendered their reports, which were passed on to the respective plants in question. These reports contained recommendations which, for the most part, substantiated previous recommendations made from this division.

Engineering. This year brought forth an additional influx of war industries along with

extensive expansion of already established industries throughout the state. This increase in activities has resulted in more employment and the introduction of new methods and materials used in manufacturing. Since it is the duty of the engineering staff of this Division to furnish maximum protection to employees in the industry, the personnel has attempted to maintain an efficient program of Industrial Hygiene by rendering technical assistance to as many of these industries as possible.

Many detailed surveys were made of industries involving shipbuilding, aircraft construction, shell loading, camouflage manufacturing, foundries, granite cutting, paint manufacturing, mining, and mineral processing, followed by appropriate recommendations for the control of any hazards found which may impair the health of the workers.

As indicated by the summary included in this report, numerous routine inspections of plants were made for the purpose of determining to what extent previously recommended control measures were adopted or maintained. A significant part of our program for the year was the extensive work done in asbestos plants of central North Carolina following a survey made by our medical staff. The engineering investigations revealed further need of improving the working environment in order to control the asbestos hazard. In conducting this and other surveys, we have had the assistance of a chemist by lend-lease from the U. S. Public Health Service.

Another important phase of our year's work has been centered around our efforts to evaluate and reduce occupational hazards in the mining and mineral processing plants. Mica, being one of the few remaining strategic minerals, has created greater mining activities than ever experienced in North Carolina. This situation has brought about greater demands for the services of the engineering staff for control of occupational hazards.

A brief summary of the year's activities follows:

MEDICAL

	1936-38	1938-40	1940-42	1943-44
Examinations—Clinical and X-ray	5,885	3,314	5,928	1,679
Mica Industry (741)				
Asbestos Industry (839)				
Granite Industry (99)				
Blood Specimens Collected for Serological Tests	3,100	2,780	5,800	1,369
Autopsies	3	2	3	1
Compensation Hearings — Expert Testimony				
Rendered	6	21	29	4
Papers, Lectures		6	8	3
Case Reports Prepared for Compensation Hearings		12	35	8
35mm. Miniature Films in Tbc. Case Findings			22,000	19,842
14 x 17 X-ray Re-takes made in Tbc. Case Findings			882	880
4 x 5 Films in Tbc. Case Findings				583

ENGINEERING

I. Field

A. Number of Plants Visited	266
1. For routine inspection	197
2. For special Industrial Hygiene Surveys	69
a. Atmospheric contaminant samples collected	342
(1) Dust	218
(2) Other	124

II. Laboratory

A. Analyses	342
1. Dust	218
a. Particle count	218
2. Other contaminants	124

III. Miscellaneous

A. Reports	279
1. Routine inspections	197
2. Special Industrial Hygiene Surveys	69
3. Monthly	12
4. Annual	1
B. Conferences and Meetings	13
C. Papers Presented	2

NUTRITION SERVICE OF STATE BOARD OF HEALTH

Dr. John F. Kendrick, Executive Secretary

As Chairman of the State Nutrition Committee I, as well as the other personnel of the State Board of Health, have continued to co-operate in the promotion of the aims of this Committee. Other official agencies cooperating are the State Departments of Agriculture, Agriculture Extension Service, Education and Welfare; and the Federal Farm Security Administration. Universities and colleges in the State, the Red Cross, the Home Economics Association, and Home Economics Women in Business are among the voluntary cooperating agencies. By promoting to the fullest possible extent such vital projects as food production, food Conservation and instruction in nutrition, this Committee expects its efforts to exert a favorable influence upon the nutritional status

of the people of North Carolina. To date, nutrition committees have been organized in ninety-six of the counties and the over-all state program is being promoted through them.

In view of the magnitude of the preventive aspects of the nutrition problem as well as the important part which food may play in the maintenance of that physical condition which is a little better than just "good health," the State Board of Health has been planning for the past two years to contribute a service which heretofore has not been included in its program. To implement this service a Division of Nutrition is being organized within the State Board of Health which will consist of a medical nutritionist, a principal nutritionist, and two senior nutritionists. The plan also contemplates the gradual augmentation of the personnel of County Health Departments by

the addition to their staffs of a Coordinator or Health Educator whose training and experience will include nutrition. If, as visualized, this service comprehends a sound educational approach, and capitalizes not only upon the preventive possibilities resulting from good nutrition practices but also upon the attainment of health assets of the highest order, the State Board of Health will indeed have made a worthy contribution to the State's cooperative nutrition program.

NORTH CAROLINA COOPERATIVE NUTRITION STUDY

Dr. D. F. Milam, Research Professor of
Nutrition

In the past year (April 1, 1943 - March 31, 1944) the Nutrition Study carried to completion the nutrition survey of Wayne County and more than half of a similar program for Alamance County. In each of these areas two hundred families (approximately 1000 individuals) were carefully selected to be representative of the area, geographically, racially, and as far as possible economically. The findings on these families are taken as representative of the areas from which they were drawn,

and to some extent for similar areas throughout the State. The techniques of the survey included for each individual a medical history and physical examination, laboratory examination of blood sample, and a seven-day food intake record.

The results of the Wayne survey have been compiled in part. It should be pointed out that in choosing Wayne County for the survey, one of the better farming counties was selected, so that results could not be interpreted as representative of the poorest counties only. The figures here presented for Wayne therefore represent probably the better regions of the state; poorer areas would be expected to present a less favorable picture.

The tabulations show the status of groups in the populations and for this purpose are quite informing. Because of the many factors, other than diet, that determine individual variations, the findings are most valuable when interpreted for groups rather than for individuals. A brief summary of the Wayne County food intake data for the twelve months, July 1, 1942 - June 30, 1943 is as follows:

TABLE I

	N. R. C. Rec. Diet Allowance (Daily)	White (457 Individuals)		Colored (399 Individuals)	
		Getting under 50% of this Level	Getting under 25% of this Level	Under 25%	Getting under 50%
Vitamin C	75 mg.	73.1%	40.7%	79.7%	49.6%
Vitamin A	5000 I.U.	25.8	5.4	25.1	8.0
Thiamin	1.5 mg.	56.7	9.9	64.2	17.8
Riboflavin	2.2 mg.	71.1	24.3	82.2	36.6
Calcium	0.8 gm.	29.8	0.9	41.9	4.5
Iron	12 mg.	15.6	0.7	27.4	2.8
Protein	70 gm.	11.3	0.4	20.3	1.3
Calories	2500 Cal	9.8	0.2	25.6	0.5
Calories	2500 Cal.	5.5	0	20.8	1.0
Adults Only 253 W. 207 C.					

These figures must be accepted with certain reservations. First is the fact that these figures are the summation of individual diet records which by their very nature are inaccurate and incomplete. Even the best intentional individual may omit recording some

items of his food consumption during the survey week; he certainly will make some errors in estimating the amounts consumed, using only rough household measures or estimates. There is a somewhat smaller chance that the individual will record more than his

actual consumption of food. The resultant group figure with balancing off of individual errors is believed to give a fair picture of the trends in dietary habits here, with the actual figures giving minimum estimates of intakes. This last is all the more true of the vitamin C figures where that nutrient was calculated only for its content in foods consumed raw. The vitamin C content of cooked foods, though quite variable and unpredictable for any food in any home, is still apt to be quite high when compared with the raw food. The vitamin C group estimates as shown above would therefore have to be revised upward rather markedly. The incidence of true scurvy being very low here could be explained by this rather high incidence of vitamin C in cooked foods.

A surprisingly low calorie intake has characterized all nutrition surveys made by the Study. In Wayne County 9.8 per cent of the white group and 25.6 of the colored consumed less than one-half the National Research Council minimum recommended level of 2500 calories (for sedentary man). Only 1 white and 2 colored individuals reported less than one-fourth of the recommended level. Allowing for inaccuracies in method (as pointed out above), there still remains the likelihood that very appreciable percentages of the population

consume far too little food on the calorie basis. When to this is added the under-consumption of other essential specific nutrients the resultant nutrition level leaves much to be desired. There are evidently a great many people in the State who should consume much more food to get an adequate intake of calories for useful work.

The rather poor showing in the B complex vitamins, thiamin (B1) and riboflavin, will be paralleled by figures for the anti-pellagra vitamin nicotinic acid (niacin) when these are ready. Calculations on a sample of representative diets show an average individual intake of niacin equal to 7.5 milligrams or about one-half the recommended level. Thus the B complex vitamins represent a very marked deficiency in the food intake status of this region. The clear indication for improvement of dietaries in foods rich in these nutrients is evident. Proper attention to the diets content of milk, meat and whole grain cereals would do much to solve this problem. Only such attention to the regional dietaries will solve this problem, and this means better understanding by individuals of what constitutes an adequate diet. When the local folklore of food results in the inclusion of protective foods in all accepted dietaries this problem will be solved.

TABLE II
Some Physical Defects Found
Wayne County 1942-43

Per Cent of Individuals Showing	White	Colored
	327 Individuals	345 Individuals
Vascularization of Cornea		
Slight	69.6	16.8
Moderate	4.1	0.3
Gum Lesions		
Mild to Moderate	25.1	22.3
Severe	10.1	12.8
Dental Defects		
Mild to Moderate	40.7	28.1
Severe	20.1	16.8
Conjunctivitis	62.6	66.9
Tongue Abnormalities	5.8	2.6
Cheilosis	1.8	1.7
Weight Abnormalities		
Adults: 20 lbs. Underweight	14.1	11.4
Adults: 20 lbs. Overweight	20.2	19.5
Children: 10 lbs. Underweight	39.4	23.7
Children: 10 lbs. Overweight	10.2	16.7

The physical examination of individuals for signs which are the result of food deficiencies did not reveal a physical status that the above dietary findings would lead one to expect. The certain signs of food deficiency, i. e. deficiency diseases such as scurvy, pellagra, rickets, beriberi, etc. are very definite. Such diseases were not found in this survey. Earlier and less definite signs were more frequent though not statistically high, but their lack of sure specificity for nutritional lack must lead to caution in their interpretation. Only a small number of individuals can be surely diagnosed as suffering from "pre-clinical" deficiency. It seems likely that some ill health in a far greater number of individuals is pre-

sent and is the result of food inadequacies. Proving this point by the present techniques has not been achieved.

Among the physical signs slight vascularization of the cornea was found in a considerable percentage of the groups studied, but only rarely did this vascularization really extend beyond the limbus and into the cornea proper, with resultant probability of true nutritional origin. The neurological syndrome (of possible B complex) was not diagnosed with any frequency, and the same holds for tongue and mouth symptoms. Dental caries was widespread as the table shows, but its sure connection with food deficiency is yet to be proven.

TABLE III
Laboratory Findings
Mean Blood Plasma Levels
Wayne County, 1942-43

Nutrient	Suggested Normal Levels Per 100 c.c. Plasma	White	Colored
		327 Individuals	345 Individuals
Vitamin C	0.6 † mg.	0.60	0.56
Vitamin A	70 †	90	89
Carotene	150 †	286	343
Total Proteins	6.5 †	7.2	7.5
Albumin	4.0 †	4.5	4.4
Hemoglobin	14.5 † gm. Male	14.6	14.1
12 Years †	15.5 † gm. Female	13.1	12.5
Red Blood Cells	4.5 † Millions Male	4.9	4.8
12 Years †	5.0 † Millions Female	4.4	4.4

Laboratory findings are very definite figures which can be appraised in very measurable ways. These laboratory findings at first were expected to make up for the deficiencies in the two procedures already discussed. Unfortunately equally disconcerting deficiencies rapidly became evident in these laboratory procedures, with the result that their inter-

pretation and use can only be in connection with dietary studies and physical examinations. The multiplicity of factors determining any individual's nutritional status thus becomes evident. But again the trend or picture for the group is more informing and certain generalizations are justified.

In the first place plasma levels of vitamin C are found to be considerably below what is known to prevail in individuals getting the accepted minimal adequate intake of this vitamin. Whether this lower level results in definite harm or ill health to the individual has not been clearly demonstrated, but the probabilities are sufficiently strong to justify an earnest campaign to improve the vitamin C content of regional diets. The probabilities are that health and vigor would greatly improve with the success of such a program, not only from the improved vitamin C status, but also from improvement in many other essential nutrients occurring in the same protective foods as does vitamin C.

Vitamin A nutrition is definitely at a higher level here than that of vitamin C. The green and yellow cooked foods rich in vitamin A are more generally used and liked. Butter rich in vitamin A is consumed in too small quantity to alter the group picture of vitamin A intake. Its greater use should be pushed. In general the vitamin A status seems to have improved greatly in the last three years as shown both by increased consumption of vitamin A and higher levels in the blood.

Protein levels in the blood reflect a fairly adequate intake of this important food factor. No nutritional edema was encountered in the survey.

Hemoglobin levels, on the other hand, are such as to justify the statement that anemia of a mild degree is characteristic of this region. Extremely low levels (usually with some additional precipitating cause) were frequently encountered and progressively more individuals were found at each higher level. Statistical means for the whole group indicate the need for better nutrition in the iron rich foods.

The overall picture of the nutrition status in North Carolina as revealed by the first survey of an entire county is one to shatter complacency with present food habits. But it is not one to justify over pessimistic statements of general malnutrition and impending physical collapse. A steady program of improving production and consumption of protective foods is clearly indicated, this to ac-

company the improving conditions on many fronts.

In addition to the field survey, the Nutrition Laboratory in the State Laboratory of Hygiene has made extensive analysis of vitamin C content of cooked foods, cooked in the method customarily used in North Carolina. The result of this study has shown the great nutritional value of turnip greens, collard greens and especially their pot liquors in keeping up the vitamin C nutrition of our people. Other vegetables were analyzed and showed lesser, but valuable contributions of this vitamin.

This laboratory also has been carrying forward for several months a survey of the prenatal clinic of the Wake County Health Department. Report on this activity is not yet available. The laboratory located in Duke Hospital has carried out extensive vitamin examinations on hospital patients and amongst other things has taken part in the development of the vitamin A technique as a diagnostic tool, particularly in the diagnosis of sprue.

SCHOOL-HEALTH COORDINATING SERVICE

Dr. W. P. JACOBS, Director

Introduction. Since April 1943 the School-Health Coordinating Service has completed work in Alamance, Nash and Edgecombe Counties and in the City of Rocky Mount; and has partially completed work in Pitt, Sampson and Greene Counties. In addition Summer Conferences were held at the Woman's College, Greensboro, and at the University, Chapel Hill; at Bennett College, Greensboro, and the North Carolina College for Negroes at Durham. Some progress has been made in respect to inaugurating the teaching of health education in the teacher colleges of the State.

Staff. The staff has been increased by the addition of one nutritionist and one negro public health nurse. At the present time the staff is as follows: one Coordinator; one doctor; three Health and Physical Education Advisers; three Public Health Nurses; one Nu-

tritionist. Of these one doctor, one health and physical education adviser, and one nurse are Negroes who work exclusively in the Negro schools. In the budget for 1944-45 we have funds to secure one psychiatrist, one Health Educationist, one Negro Nutritionist. When this staff is assembled, the In-Service training group will be well prepared to carry out most of the important phases of school-health work.

Summer Conferences. Conferences were held as formerly at the Woman's College, Greensboro. (June 9-July 17) and at the University, Chapel Hill (July 21-August 27) for white teachers; and at Bennett College, Greensboro, (June 1-July 10), and at North Carolina College for Negroes, Durham, (June 7-July 16).

The Conferences were made possible by the General Education Board through the donation of funds for general expenses and for scholarships. The total number of scholarships accepted were 163, of which 133 were from North Carolina and 30 from other Southern States. The figures are:

	N. C.	Other Southern States*	Total
Woman's College	24	5	29
University of North Carolina	24	12	36
Bennett College	38	1	39
N. C. College for Negroes	47	12	59
Total	133	30	163

The subjects taught at all the conferences were: Personal Health Problems, School and Community Health Problems, Child Health Problems and Methods and Materials of Health Education. In addition a day camp for twenty children was carried on in order that the children might be observed by the conference members in regard to the health measures which were being taught.

In-Service Training. In the county and city schools the staff gave instruction through group conferences and individual visits in the following subjects: health service (including screening—eyes, ears, nose, throat, teeth, skin, anemia, posture), communicable diseases, respiratory diseases, hookworm, malaria, venereal diseases, home visiting, health instruction,

including health habits, sanitation, nutrition and physical education.

In each county arrangements were made through the health departments and the local county medical societies to get the defects corrected of those who were able to pay as well as those who could not pay. The School-Health Service was agreeable to any plan which was acceptable to the health departments and the specialists concerned. Satisfactory arrangements were concluded in each county and city. This work moves slowly and exact figures are not yet available although it is well known that a large number of defects have already been corrected. The children are screened by the teachers and checked by the nurse before the staff leaves the county. The final examinations are made by the local health officer.

Instruction in health habits and sanitation is carried on by all the staff. The gap between instruction and practice still continues but it will be only a question of time before there will be suitable practice arrangements in each school administration.

Nutrition. Nutrition is dealt with in a practical way by advising the lunchroom manager in regard to the selection, preparation and exhibition of the foods and by visiting the homes and conferring with parents in regard to lunches prepared for the children. In addition, instruction in nutrition is given to the teachers and health departments staff and the question of the best methods to teach nutrition is gone into with considerable thoroughness. This phase of the work has made excellent progress during the year due to a larger staff and better available literature.

Sanitation. Each school is visited by one of the doctors in company with the County Sanitarian. The buildings are inspected, including the toilets, the drinking fountains, the cloak-rooms. Each classroom is visited in turn. Notations are made and teachers are asked for suggestions in regard to heating, lighting, ventilation and other matters relating to the health and comfort of the child. It is important

*Virginia, South Carolina, Georgia, Florida, Alabama, Kentucky.

to have suitable sanitary arrangements in order that proper health habits may be practiced. The grounds are inspected for capacity and neatness.

Physical Education. A criticism that the schools turned out physically unfit boys has been made by the draft boards. While the unfitness may not have been entirely due to lack of attention to physical fitness yet it is true that physical exercises were for the most part denied the student body as a whole and was confined to the development of athletic teams. In our work one adviser gives special attention to games and rhythms in the elementary schools and the other in the high schools. Suitable hours for carrying out physical exercises are suggested. As a result of their efforts more attention is being given to physical education in both elementary and high schools.

Schools and Health Departments Visited During the Year. In Rocky Mount there were for whites: six schools (5 elementary and 1 high) and 94 teachers; for Negroes: 4 schools (3 elementary and 1 high) and 67 teachers. The health department consisted of: one Health Officer; two Public Health Nurses; two Junior Public Health Nurses; one Senior Sanitarian; one Veterinarian; one Junior Bacteriologist; one Senior General Clerk; two Junior General Clerks; one V. D. Follow-Up Worker; one V. D. Clinic Nurse; one Janitor.

In Nash County there were for whites: 29 schools (20 elementary and 9 high) and 193 teachers; and for Negroes: 37 schools (35 elementary and 2 high) and 113 teachers. The health department consisted of: one Health Officer; three Junior Public Health Nurses; one Junior Sanitarian; one Junior Stenographer-Clerk; one Junior Follow-Up Worker.

In Tarboro there were for whites: 3 schools (2 elementary and 1 high) and 35 teachers; and for Negroes 3 schools (2 elementary and 1 high) and 29 teachers.

In Edgecombe County there were for whites: 15 schools (10 elementary and 5 high) and 88 teachers; and for Negroes 41 schools (39 elementary and 2 high) and 118 teachers. The health department consisted of: one Health Officer; two County Physicians; one Super-

visory Nurse; two Senior Public Health Nurses; five Junior Public Health Nurses; one War Emergency Nurse; one Senior Sanitary Officer; one Junior Sanitary Officer; one War Emergency Sanitary Officer; two Follow-Up Workers War Emergency; two Typist Clerks; two Junior General Clerks.

In Greenville there were 4 schools for whites (3 elementary and 1 high) and 52 teachers; and for Negroes 3 schools (2 elementary and 1 high) and 29 teachers.

In Pitt County there were 25 schools for whites (13 elementary and 12 high) and 207 teachers; and for Negroes 58 schools (53 elementary and 5 high) and 149 teachers. The health department consisted of: one Health Officer; three Junior Public Health Nurses; one Senior Sanitarian; one Senior Stenographer-Clerk; one Junior General Clerk.

Before the work ended in each county, every school was visited at least once and many of them several times depending upon the particular desires and interests of individual principals and teachers. The average stay in a county was eight weeks.

Local Coordinator. An idea which has received ready acceptance on all sides is the determination to provide a trained person to be attached to the county organization whose duty is to see that the In-Service training is carried on from year to year without cessation. This is not possible with the existing staff. The School-Health Coordinating Service has been able to interest the General Education Board and has secured ten fellowships for training personnel for local coordinators. The training will be for twelve months, nine of didactic teaching and three of practical work in the field. The training will be given at the University of North Carolina. It is expected that the first batch will enter the University in September for one year's training. Afterwards the local coordinator will return to the county. When this person is established in the county, many of the present deficiencies will be taken care of.

Program for 1944-'45. The counties selected for In-Service training in 1944-45 are: Catawba, Lincoln, Cleveland, Rutherford and Polk.

Preliminary visits have been made to them and joint conferences with the health departments and school administrations have been held.

Conclusion. It is encouraging to add that the interest in the combined work of the two departments, Health and Education, is increasing each year among county administrations. Visitors from other states and Canada have come to the State to confer with officials on the subject. Several other states are planning to set up similar organizations.

DIVISION OF VITAL STATISTICS

Dr. R. T. Stimpson, Director

North Carolina's health record for 1943, as indicated by the number of deaths from all causes, was markedly better than might reasonably have been expected in view of the war's strain and stress, and the probably altered age distribution of the population. There were a few more deaths from all causes in 1943 than for the preceding year, but the death rate remained unchanged due to the increase in population.

More births were recorded than for any year since the start of registration. Last year the 95,251 births outnumbered those for the year before by 5,195, and accounted for a rate of 25.7 per 1000 population, the highest recorded since 1927.

There were a total of 30,072 deaths in 1943, as against an aggregate of 29,613 for the preceding year. The 459 more deaths did not alter the death rate of 8.1 per 1000 population, the lowest on record. The eight principal causes of death in 1943 were the same as in 1942. They were heart diseases, nephritis, cerebral hemorrhage, violent and accidental deaths, congenital malformations, cancer, the pneumonias and tuberculosis.

With a few exceptions the number of deaths from infectious diseases declined or showed no significant change. Among the diseases accounting for fewer deaths was tuberculosis. There were 1,445 deaths from all forms of tuberculosis in 1943 compared to 1,578 in 1942, or 133 fewer deaths, representing a lowering in the rate from 43.0 per 100,000

population to 39.1. The number of deaths from typhoid fever was about the same for the two years—19 in 1943, against 21 in 1942, and 39 in 1941. Typhoid fever deaths have decreased by more than 70 percent within the last five years. There were 20 deaths from measles compared to 55 in 1942; 22 malaria deaths against 37 for the preceding year; 110 deaths from pellagra in both 1943 and 1942; 8 deaths from scarlet fever against 10 the year before; and 438 death from diarrhea and enteritis under two years of age compared to 464 in 1942.

The 56 deaths from diphtheria in 1943 with a rate of 1.5 was considerably better than the 1942 record when 70 deaths occurred with a rate of 1.9. Only one-third as many deaths occurred from this disease in 1943 as in 1939.

Both infant and maternal mortality showed an increase in the number of deaths, but due to the greater number of births the deaths per 1000 live births were slightly lower. There were 322 puerperal deaths, or 14 more than in 1942, and a change in the rate from 3.4 in 1942 to 3.3 in 1943. The number of infant deaths increased from 4,281 in 1942 to 4,434; but because of a greater number of births, the rate declined from 47.5 to 46.6 per 1000 live births.

Pneumonia deaths increased from 1,677 in 1942 to 1,692 in 1943, and influenza from 296 to 440. But with the exception of 1942 the rate was much lower than for any prior year.

The number of deaths from whooping cough increased from 99 in 1942 to 109 in 1943, cerebrospinal meningitis from 19 to 52; cancer from 2,219 to 2,317; and diabetes mellitus from 445 to 457. In 1943 there was one death from smallpox, the first recorded from this disease since 1937 when one death occurred. Prior to 1937 there had been none since 1931.

The number of requests for certified copies of certificates of birth, and verification of age, parentage, and place of birth, on the increase since 1940, continued large during 1943. These certificates are required for proof

of citizenship in seeking employment in war industries, and for voluntary enlistment in the armed forces; for proof of dependency in applying for an allotment under the Servicemen's Dependency Act; for securing ration books; and for numerous other purposes. In addition to registering current birth and death certificates, over 50,000 delayed certificates of birth were filed with the Division of Vital Statistics in 1943.

With the aid of the Division of Vital Statistics of the United States Census Bureau, the method of processing current certificates is being revised. The purpose of such revision is to install the latest procedures in registration and to make more statistical data available soon after registration.

PUBLIC HEALTH PUBLICITY

Mr. Wm. H. Richardson, Publicity Specialist

For the past seven years the State Board of Health has utilized the services of a senior publicity specialist whose duties are in line with what the term implies. He is attached to the Division of Central Administration and is responsible to the State Health Officer, under whose direction he works.

During the past year the senior publicity

specialist has continued to prepare and edit material given out by the Board of Health for publication in newspapers, which, together with the Associated Press and the United Press, have continued to give their cooperation to public health by publishing such items and features as are designed for public enlightenment. Clippings of all printed materials are compiled and preserved not only for present reference but for the information they will furnish in the maintenance of a running history of this department.

The senior publicity specialist also has continued to give weekly broadcasts over Station WPTF at Raleigh, to assist when called upon by furnishing special articles for *The Health Bulletin* and to aid in reporting the proceedings of the Medical Society of the State of North Carolina for the newspapers, working in cooperation with the officials of the Society, especially the secretary-treasurer.

Recently, to him was assigned the duty of writing regular news letters to public health personnel in the armed forces, both at home and overseas.

He also assists in getting up and furnishing information of various types for which the Board has requests.



The Health Bulletin

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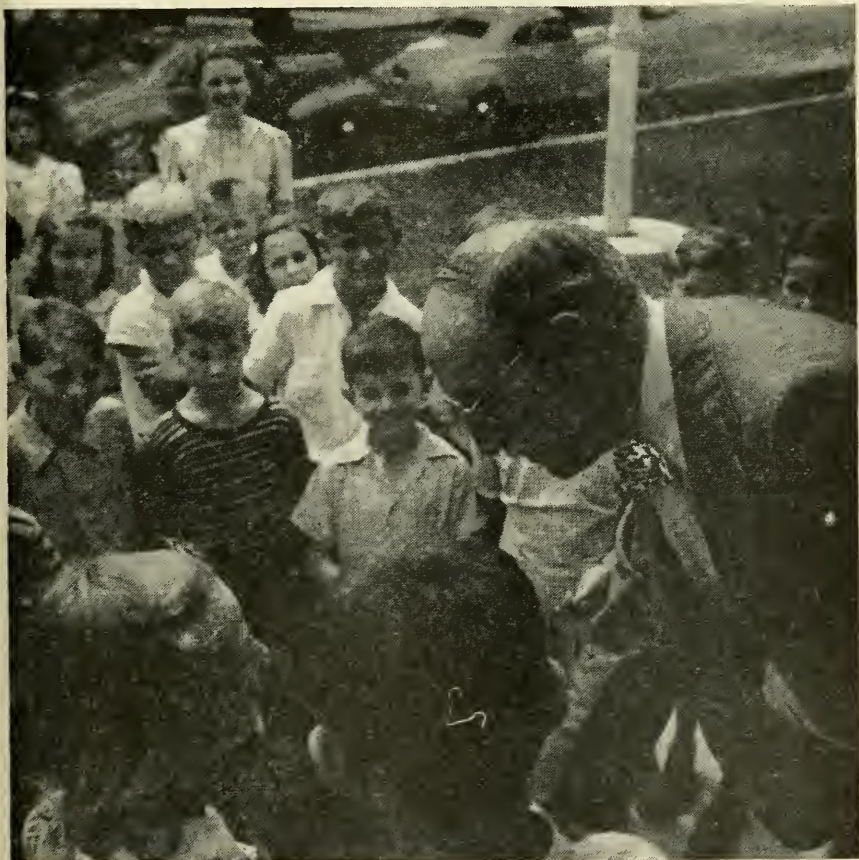
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AUGUST, 1944

No. 8



DR. MILTON J. ROSENAU AT DEDICATION OF WAYNE COUNTY
HEALTH CENTER

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FREE HEALTH LITERATURE

The State Board of Health publishes monthly THE HEALTH BULLETIN, which will be sent free to any citizen requesting it. The Board also has available for distribution without charge special literature on the following subjects. Ask for any in which you may be interested:

Adenoids and Tonsils
Appendicitis
Cancer
Constipation
Chickenpox
Diabetes
Diphtheria
Don't Spit Placards
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Flies
Fly Placards

German Measles
Health Education
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Typhoid Fever
Venereal Diseases
Vitamins
Typhoid Placards
Water Supplies
Whooping Cough

SPECIAL LITERATURE ON MATERNITY AND INFANCY

The following special literature on the subjects listed below will be sent free to any citizen of the State on request to the State Board of Health, Raleigh, North Carolina.

Prenatal Care.
Prenatal Letters (series of nine monthly letters).
The Expectant Mother.
Breast Feeding.
Infant Care. The Prevention of Infantile Diarrhea.
Table of Heights and Weights.

Baby's Daily Time Cards: Under 5 months; 5 to 6 months; 7, 8, and 9 months; 10, 11, and 12 months; 1 year to 19 months; 19 months to 2 years.
Diet List: 9 to 12 months; 12 to 15 months; 15 to 24 months; 2 to 3 years; 3 to 6 years.
Instruction for North Carolina Midwives.

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Wayne County Health Center

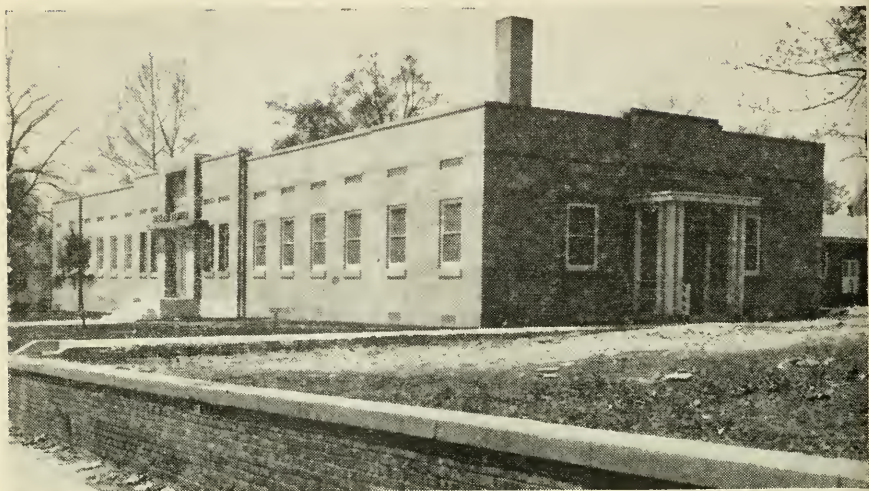
By S. B. McPHEETERS, M.D.

County Health Officer, Goldsboro, N. C.

FOR about twenty years the Wayne County Health Department was housed in a small brick building in rear of the Court House. This building was the oldest public building in the County, older than the present Court House and City Hall. It had been built for the Register of Deeds. The two rear rooms had walls over eighteen inches thick. The windows in these walls were few, small and glazed with reinforced opaque glass. While this building could never by any stretch of the imagination have been regarded as a symbol of hygiene and sanitation it had sufficed for the time when the Department had five persons on the staff and limited activities. But as the staff, full time and part time, increased to more than thirty and the activities increased proportionately with clinic visits to the Department approaching 40,000 annually, the cramped condition became intolerable and the appearance stigmatized the whole health program in the eyes of the community.

With the coming of the military forces to Wayne County and the passage of the Lanham Act, an opportunity for better housing of the health activities became possible. In April 1942, Doctor W. K. Sharpe, Jr. visited the Department and attended a meeting of the Board of Health. At this meeting the possibility of securing better quarters for the Health Department was discussed and an application to F.W.A. for funds for this purpose was approved by the Board of Health. As the application had to come from the County

Commissioners it was not until July 1942 that formal application was made to F.W.A. The policy of F.W.A. however, required that every effort be made to discover whether a building already existing in the community could not be remodeled to provide suitable quarters. After several months of exploration of this idea, with numerous visits from representatives of F.W.A. and also several visits by the State Health Officer and members of his staff and the District Director of U.S.P.H.S., Doctor W. K. Sharpe, Jr., Mr. Kenneth Markwell, Regional Director of F.W.A. decided that there were no buildings available in Goldsboro suitable for remodeling as a health center. After the lapse of several more months the county was notified that a grant for a new health center had been made. Plans for this health center accompanied the grant. The plans however, provided a building which was entirely inadequate to house the activities of the Health Department, though this building called for an allotment of more than \$40,000. With many misgivings it was decided to attempt to secure an adequate building, the floor plans of which had been designed after years of sketching and resketching with a view to housing comfortably and conveniently the operations which were actually being conducted and the personnel who performed those operations. Mr. A. J. Maxwell designed and drew complete plans for a building embodying these sketches. Prolonged negotiations and numerous conferences finally resulted in an



Wayne County Health Center

allotment of \$80,000 for building and equipment and acceptance with some modifications of the local plans for the building. While up to this point F.W.A. with headquarters in Richmond, had conducted the business for the Federal Government, the handling of the project was now turned over to P.B.A. with headquarters in Washington. Many months were consumed in repeated revisions of the detailed blueprints and specifications to make them acceptable to the engineer of P.B.A. Finally however, the plans and specifications were approved. Bids were opened in Washington in October of 1943. The bid of Herman Sypes Company, Conover, North Carolina was accepted and construction began in November. Bad winter weather delayed operation so that the building was not completed and occupancy by the Health Department authorized by P.B.A. until the last week in March. The workers however, did not leave the building entirely until the second week in April and the last equipment was not received until several weeks later, though most of the equipment was in at the time the staff moved in.

The building is a one story structure with a flat roof. The walls are of hollow tile, faced with a veneer of gray brick. The trim is of

Indiana lime-stone. The general outline of the building is in the form of a T. The main entrance is in the center at the head of the T. In the right arm of the head of the T are the quarters of the staff consisting of the office of the health officer, the library, the staff toilets, office of sanitarians, office of the nutritionist, office of the supervising nurse, nurses' record room, telephone booth, staff cloak room, the nurses' room and the record room and vault. In the left arm of the T is the orthopedic clinic room, the office of the interviewing nurse, supply closet, the maternity and infancy demonstration room, the maternity physician's consulting office, the maternity preparation room, the maternity examining room, the fluoroscopic room, the X-ray room and dark room, four patient toilets, the V. D. clinician's consulting room, the arsenicals administration room, two heavy metals rooms, the laboratory, the dental clinic and a large corridor and subwaiting room. In the stem of the T is the furnace and fuel room, the demonstration kitchen, the literature room, the auditorium seating about one hundred fifteen people and two small offices. The main corridor continues into the corridor leading to the auditorium. The W.P.B. restriction operative at the time



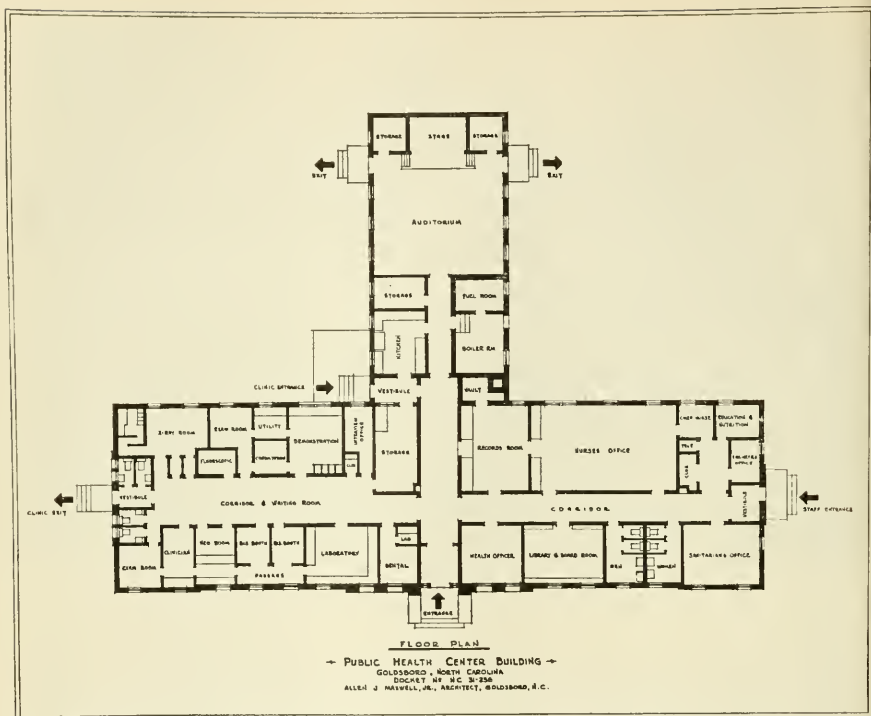
Lukens School

of construction did not permit the use of steel. In consequence the floors are of wood (double flooring) upon which insulation is laid and finally asphalt tile. The floors in all wash rooms are ceramic tile. The walls have wood studding and trim with plaster board lath and plaster. The walls in the auditorium however, are a special yellow hollow tile. The construction of the roof provides wooden rafters for ceiling and roof and wooden trusses. The roofing is a built up specification roof with a parapet wall about two and a half feet high around it. The ceiling throughout the building is a buff Celutex board. The interior trim and walls are painted green. In the corridors the walls are painted a green lighter than the wainscot moulding. Above the wainscot moulding the wall is painted a light buff. In the interior of the rooms the trim is the same green and the walls are buff. The outside trim is painted white. The lighting is indirect. The total floor space is 7400 square feet. There are six entrances, the main entrance in the center of the head of the T; an entrance at each end of the head of the T; an entrance on the left side where the stem joins the head

of the T; an entrance opens into a corridor which in turn leads into the central corridor. All of these four entrances have vestibules. There are two entrances or exits from the auditorium, one on each side.

The building is well lighted by forty-eight windows. Opaque glass in the walls separating clinic rooms and office rooms from their respective corridors contributes to the natural lighting of these corridors. Cabinets in the nurses' office, in the record room, in the clinic rooms supply abundant storage space for small articles. No basement was permitted. A furnace and hot water heater plant constitutes the heating system. The ceiling is insulated with rockwool. The construction of the walls provide adequate insulation. A supplementary heater and one hundred gallon hot water tank provides hot water for the laboratories. A parking lot covered with crushed stone is located in the rear of the building. On three sides the building is surrounded by lawn.

The equipment included sixteen walnut desks, typewriter desks, library tables fifteen library chairs, one hundred forty auditorium chairs, filing cases, laboratory and clinic equip-



ment, a 200 m.a. shock proof General Electric X-raying machine with tube stand, asset holders, cassetts and dark room equipment. The vertical walls and doors of the X-ray room are lead-lined throughout. Dressing rooms are provided. The kitchen is provided with a dishwasher, and sterilizer, a gas range, an electric refrigerator and ample cabinets. The purpose of this kitchen is to enable the demonstration of proper dishwashing methods to be used in eating places and in homes, as well as to provide for the preparation and cooking of foods in the teaching of nutrition, and to serve meals to various groups using the auditorium as a dining room. Other articles of equipment provided have not been mentioned. But an application for supplementary equipment has been made.

There are two incoming phone lines with five phones in the building. One in the record room, one in the telephone booth to be used by nurses, sanitarians, and nutritionist, one in the health officer's office, one in the clinic,

and one in the auditorium. The hook up of these phones is such that an intercommunication system by the five phones is provided.

The staff consists of a health officer, three sanitarians, three secretaries, nine nurses, one nutritionist, six part time physicians, one part time dentist, two part time veterinarians, one malaria control engineer, one entomologist, and a work gang of twenty-five to thirty.

Some of the salient activities of the Health Department are as follows:

Clinic Program: 1 weekly foodhandlers clinic, 7 weekly V. D. clinics, 4 monthly well baby clinics, 4 monthly maternity clinics, 2 monthly planned parenthood clinics, 1 weekly fluoroscopic clinic, 1 monthly orthopedic clinic, 4 weekly immunization clinics.

School Health Program: Entrants are examined annually. The teachers make the initial inspection and a nurse inspects those referred by the teacher. The health officer examines those referred by the nurse who have not been referred to a private physician. The entrants

and all school children from the seventh grade up not previously positive are tuberculin tested together with teachers and school employees. Positive reactors are X-rayed at the Health Department. All contacts of X-ray are tuberculin tested and X-rayed.

After the Christmas holidays immunization clinics are conducted in the school at which clinics school children are immunized against typhoid, diphtheria, whooping cough and smallpox. These clinics are termed family clinics and parents, brothers and sisters and domestic farm employees and other members of the household are urged to attend and receive suitable immunization, typhoid and smallpox for adults. Each consolidated school receives a visit of one hour per week by a staff nurse. Small one teacher schools receive a visit by a nurse once a month.

The family immunization program, the weekly immunization in the three health

centers, the industrial immunization program and special immunization clinics where cases of typhoid occur, constitutes the immunization program.

A nutritionist has served on the staff for more than a year and conducted a special nutrition program in the schools and in the community.

A school for foodhandlers, white and colored separately, has been conducted with great success.

An extensive privy program has been carried on since the coming of the camp and a malaria control program staffed by an engineer, an entomologist and a work gang of twenty-five to thirty has been carried on in the vicinity of Goldsboro and the military camp, Seymour Johnson Field.

The Department has been made a training center for nurses and sanitarians during the past year.

Poliomyelitis or Infantile Paralysis

AS soon as it became apparent, early in June, that there was an increased prevalence of poliomyelitis the North Carolina State Board of Health consulted with the nation's recognized authorities on this disease. Authoritative statements to the press have kept the public informed as to the development of the epidemic and the measures adopted to deal with this problem.

Public Health Officials of eight southern states, meeting July 10th in Raleigh with officials of the United States Public Health Service and the National Foundation for Infantile Paralysis, issued the following statement in respect to infantile paralysis:

"In the light of what is known today a few essential recommendations should be stressed.

Any program limiting the number of contacts of people susceptible age groups in areas where there are outbreaks of infantile paralysis should be encouraged by every possible means. In rural areas where infantile paralysis is present or in communities adjacent thereto

the opening of schools would definitely increase the amount of contact between children, therefore, should be delayed. However, there is no point in closing schools and allowing children to congregate in groups elsewhere: at picnics, on the streets, churches, swimming pools, theatres, day nurseries, homes and playgrounds.

The improper disposal of human excreta may be an important factor in the spread of infantile paralysis, since the virus which causes this disease is known to be present in stools and sewage. Where approved sewage systems do not exist, excreta should be disposed of only in fly-proof privies or in a manner approved by local or state health authorities.

Increased attention should be called to the hygiene in the home. Food should be prepared and handled in a manner to prevent contamination by flies, other insects and from all other sources of human secretions. Homes should be screened against flies since in certain instances flies have been known to carry the

virus of infantile paralysis.

During outbreaks of infantile paralysis children should be kept from indulging in exercise that will produce exhaustion or an undue amount of fatigue, since this has been known in many instances to be a contributing factor in the development of a more serious form of the disease.

Removal of tonsils and adenoids during an epidemic or during the infantile paralysis season is contra-indicated and should be discouraged in all but exceptional cases.

Medical care early in the course of the disease is important in assuring a maximum degree of recovery. Adequate treatment, including medical care, nursing and physical

therapy can best be given in a properly equipped hospital. To assure the best medical care it is necessary to have correct diagnosis established as early as possible. All who show signs of illness which is suspected of being infantile paralysis should be kept isolated and kept at absolute rest until they can be seen by a physician and a correct diagnosis made. The family should in every way cooperate with the health authorities in respect to isolation and quarantine.

Since as yet there is no vaccine or serum that will prevent infantile paralysis, full cooperation in carrying out these recommendations offers the best protection for every one."

Something About the Health Bulletin

By MARY S. BATCHELOR, Field Representative
State Board of Health, Raleigh, N. C.

IN the month of April 1886, The Health Bulletin, official organ of the North Carolina State Board of Health, made its appearance. Its birth followed an act of the Legislature allowing the State Board of Health printing privileges "not to exceed \$250 annually."

In his report to the Conjoint Session of the North Carolina State Board of Health with the State Medical Society, which is included in the second biennial report (1887-1888) Dr. Thomas Fanning Wood, Secretary of the State Board of Health, had the following to say with regard to The Health Bulletin and the purposes for which it was created:

"The Bulletin of the North Carolina State Board of Health was begun in 1886—April—and has continued its monthly visitations ever since. It is distributed to State and County officials, to Superintendents of Health, and to any person asking for it. Its objects are:

1. To put on record the condition of health, the prevailing diseases among the people and the domesticated animals in all parts of the State, serving as a means of intercommunication by which counties can compare their conditions of sickness with each other.

2. To give the number of paupers and prisoners in each county and to show their sanitary condition and surroundings, and also their educational condition, as far as their ability to read and write.

3. To give the numbers of deaths, and the principal causes of death, in the larger towns of the State.

4. To give the record of temperature and the barometer from principal divisions of the State.

"The Board considers this pioneer work, from which they hope to educate the people up to the necessity of accurate vital statistics."

This terse statement of the aims and objects of The Health Bulletin might be considered a miracle of understatement. For The Health Bulletin, in its fifty-eight years of life, has held and realized many ambitions which could not be covered by Dr. Wood's brief outline. All of the objects first outlined have been carried out but many more have been added. For nearly sixty years The Health Bulletin has been many things to many people. It has been a wise counsellor of moderation, a guardian of individual and collective rights, and a fatherly

voice callings man's attention to the fact that he is indeed his brother's keeper. It has been the chronicle of the expanding public health program, the reflector of changing trends in medicine and public health, the historian of a growing cause, a textbook for healthful living, a mold of public opinion, a crusader for the right of every human being to rich and abundant life.

That The Health Bulletin met with a warm reception we can believe, since in his address to the Conjoint Session at Oxford, on May 28, 1890, Dr. Wood again mentions The Health Bulletin:

"I attribute to the publication of the Bulletin the satisfactory growth of the Board, since there is nothing like printer's ink to inform the public of what we are doing, and the Board has used it lavishly."

So began The Health Bulletin. Some of the purposes for which it was established are no longer pertinent. Present day readers would be startled considerably if weather reports, "the record of temperature and barometer readings," as well as a record of the literacy of its prisoners, were included in its pages, but it should be remembered that the life span of The Bulletin has seen amazing advances in scientific knowledge and in the conception of what constitutes public health, and that which was considered worthwhile in 1886 may appear only amusing in 1944.

However, one object of The Health Bulletin which has been continued unchanged to the present time is that of "informing the public as to what we are doing." Since its beginning, The Bulletin has endeavored to interpret to the citizens of the state the work of the State Board of Health. It has made a determined effort to present to the lay public the policies and activities of the Board stripped of technical terms and couched in the plainest of English so that there would be no cause for confusion. It has attempted to explain scientific activities in the language of the layman. It was felt that only with an educated citizenship, fully aware of the benefits to be derived from public health, could the actual work of the Board proceed and expand.

Most advances in public welfare, most of the progress leading toward the protection and welfare of a people, have come about because of the strength of public opinion—have been instituted because the people together have decided that such measures are necessary for the common good. But it was a different story with public health in North Carolina. The State Board of Health was created in advance of public opinion. The reason is evident—the leaders in the medical profession realized the need for the protection of the public health long before the People themselves were ready to demand it, and solely because of their efforts, the State Board of Health was born. Consequently, it fell to the leaders in the medical and public health fields to educate the people, to mold public opinion to the point where every advance in the science of public health would be eagerly demanded, strongly supported, and backed up by laws which could be enforced.

It was a task so mighty that only a Titan would have been willing to tackle it, only men of courage and strength would have embarked upon such an undertaking. Only men with a strong sense of duty toward their fellowmen would have considered accepting it. To the fact that such men were found, North Carolinians should be eternally grateful, for upon the foundations laid by such men as Wood and Lewis has been built the North Carolina public health program.

But it is The Health Bulletin with which we are concerned.

Circulation

There is no record of the circulation of the first Health Bulletin. But in 1894 we notice that the circulation was increased from 800 to 1200. We also notice that the first issues of the Bulletin carried the notation: "Subscription Fifty Cents Per Year" yet in June 1894 the notation read: "Subscription, 25 Cents a Year." This rate hardly seems exorbitant, but in his editorial comment in the volume for March 1894, Dr. Richard H. Lewis, then Secretary of the Board, laments the fact that there are only four paying subscribers and appeals to "friends in the State who are in-

interested in the work of the Board of Health" to send in their subscriptions so that the Bulletin might be mailed as second-class matter, saving the considerable amount of \$141.00 per year. The further explanation is made that in sending the Bulletin as third-class matter, the postage runs as high as \$150.00 per year!

Dr. Lewis followed up his appeal of March with an editorial in the April issue of the Bulletin labeled: "Discouraging"! Only five subscriptions were received in answer to his appeal!

It must have been really a blow, this ruling of the post office department that because the Bulletin had practically no paying subscribers it would have to be entered as third-class matter, instead of second-class as it originally was rated. The difference in postal rates meant a good deal, when the entire annual appropriation for the North Carolina State Board of Health still stood at \$2,000.

The Bulletin of April 1896 left off the subscription price. They had lost hope! In December 1909, the words, "This Bulletin will be sent free to any citizen of the state upon request" appeared on the front cover, where they have continued to the present time. North Carolina's Health Bulletin is entirely free to North Carolina's citizens.

Today there are 60,000 copies of the Bulletin printed each month. All issues except the July issue are 16 pages—6x8½ inches. The mailing list includes 2,102 white school libraries, 915 colored school libraries, 550 white dentists, 60 colored dentists, 264 libraries in the United States, approximately 52,000 individual tax payers in North Carolina receiving mail at 1224 post offices. 100 copies go to foreign countries. 264 individuals in Virginia and West Virginia who receive the Bulletin through 69 post offices. There are more than 500 individuals in northern states who receive the Bulletin through 65 post offices; 625 subscribers in southern states who are supplied through 287 post offices. Every State Health Department in the United States receives one or more copies each month. All health de-

partments in the state receive the Bulletin—70 of these get from 10 to 200 copies per month.

Editors of The Bulletin

The first editor of The Health Bulletin was also the first Secretary of the North Carolina State Board of Health, Dr. Thomas Fanning Wood of Wilmington, North Carolina. Dr. Richard H. Lewis, of Raleigh, succeeded Dr. Wood as Secretary and Treasurer of the State Board of Health and as Editor of the Health Bulletin. Both of these men were part-time Secretaries.

In 1909 Dr. W. S. Rankin was elected Secretary and Treasurer of the State Board of Health, the first full-time Secretary to hold office, becoming also the Editor of The Health Bulletin. It is interesting to note in this connection Dr. Lewis' editorial in the Bulletin for January 1909 in which he stated: "A sine qua non in the proper performance of this work is a competent Secretary, who shall be required to devote his while time to it . . . North Carolina is advancing with rapid strides educationally, agriculturally, and in manufacturing, and in nearly every other way. Shall she stand still in the matter of public health—the most important of all—for what is education or money worth to a man in his grave? We trust that our General Assembly, now in session, will give this matter their serious and patriotic consideration. . . . That there may be no misunderstanding as to the motive which has prompted this appeal to the Legislature, it is proper to state that as soon as the legislation asked for is enacted the present Secretary will resign."

The earnest appeal of the Secretary was not unheeded. Of course not all the money asked for was appropriated, but the March issue of the Bulletin gratefully acknowledged the receipt of an increased appropriation for public health and also took occasion to print "practically all of the law" on public health, which included a law regarding a health officer who would give his full time to the work.

The Bulletin of June 1909 carried Dr. Lewis' "Hail and Farewell." In the Bulletin for July appeared the name of the new Secretary and Treasurer. Dr. Rankin was Editor

of the Bulletin until 1913, at which time Mr. Warren H. Booker became head of the educational work of the Board, serving for five years until his resignation in 1918. In August 1919 Mr. Ronald B. Wilson was employed as Director of Public Health Education. He served as Editor of the Bulletin until 1923, at which time Dr. George M. Cooper took over this assignment. No single editor has possessed these traits more abundantly than Dr. Cooper and few of them have possessed the ability which is his of writing straight-to-the-point, homely English. Dr. Cooper writes very simply—and very compellingly, which is a great gift. For all of his nineteen years as editor, swamped with other duties, faced always with a lack of competent assistance, Dr. Cooper saw to it that the Bulletin prospered, regardless of the cost to him in time and effort. And it was only after an editorship longer than that of any other man, that the other duties of his office finally forced him to seek a leave-of-absence. In December 1941, the Bulletin carried Dr. Cooper's announcement of his retirement from his editorial duties, and his welcome to the new Editor, Dr. John H. Hamilton. The following is quoted from that announcement:

"Now that the demands of other work have become so insistent and due to the impossibility of securing adequate assistance, with this issue we have been granted a leave of absence from editorial duties. We have tried faithfully each month to give the little publication sustained character and to put in something that would be helpful to the average North Carolina family in protecting the family's health. The job has been mentally stimulating and never monotonous for a moment. We have learned a lot about our State and its people and learned to love it more and more. In all of these 19 years we have received marvelously little criticism, most of it anonymous. On the other hand, we are grateful to thousands of interested readers who have taken the trouble to give us a word of encouragement."

With his usual facility, Dr. Cooper expressed what the Bulletin had meant to him and what

he had tried to give to the Bulletin. That he succeeded well is evidenced by the fact that for nineteen years The Health Bulletin was simply "Dr. Cooper" to many, many people!

The present Editor, Dr. John H. Hamilton, Director of the State Laboratory of Hygiene, is continuing the policies established by his predecessors.

Reflector of the Changing Trends in Medicine and Public Health

It is extremely interesting to read through the first issues of The Health Bulletin and compare them with the current issues. There have been many changes in the thought and knowledge with regard to medicine and public health in the past sixty years. When the first issues of the Bulletin made their appearance it was not definitely known how malaria was transmitted; diphtheria antitoxin was only beginning to be talked about and little known of immunization against this disease here. Sanitation was the only known weapon against the spread of typhoid fever and issue after issue of the Bulletin warned and entreated its citizens to give attention to their sanitary surroundings in an effort to avoid epidemics and to save the lives of the people of North Carolina. At first, all efforts were directed toward the sanitation of the water supply, but later articles gave emphasis to the part played by the housefly in spreading the disease and urged the elimination of this pest as well as the protection of food and milk against contamination from this source.

It was not so simple a thing with malaria. Unlike typhoid fever, it was not known how malaria was transmitted. One of the early secretaries held to the theory that "drinking water as a channel of introduction of the malarial poison into the system, if not the chief, is one of the principal avenues of ingress," and with characteristic energy and directness he "proposed to demonstrate this fact upon home-spun evidence." With this end in view, he sent the following circular to every doctor living in the malarious sections of the state asking for information. If he succeeded in making out a satisfactory case, his idea was to lay the collected evidence before the people

of those sections in an effort to bring about the correction of insanitary conditions. The letter follows:

"The evidence that malarial diseases are introduced into the system in many if not most instances, through the medium of the drinking-water is, to my mind conclusive. The water containing the germs or plasmodia is surface or superficial soil water. Those living in malarial districts who confine themselves to water from cisterns or wells driven or bored beneath the stratum of marl or impervious clay—in other words beyond the water which soaks down from the surface—are to a large extent free from attacks. If the people of our eastern counties could be generally convinced of this fact and thereby induced to act upon it, the health conditions of that really fine section would be revolutionized for the better. To bring this about is the object of the Board of Health. In order to do this facts must be presented to them in the concrete—not by illustration from "Asia and Spasia and t'other side o' Hillsborough," so to speak, but by instances among their own neighbors. I write to ask if you know any facts bearing on this subject and, if so, that you will write them in detail to me at your earliest convenience. Give me the name and post office of the head of the family having the experience. If not personally familiar with the facts send me the name and address, that I may write to him direct.

"Your kind and prompt attention will greatly oblige."

The letter proved very successful indeed and until it was definitely proven that malaria was transmitted by the bite of the *Anopheles* mosquito a great many of the best scientific minds considered the infection to be caused by the drinking of polluted water. However, as more knowledge concerning malaria became available The Health Bulletin kept abreast. It published in July 1899 a report of an illustrated lecture "Relations of the Malarial Parasites to the Mosquito" delivered by Major Ross in the Physiological Theatre of University College, Liverpool, published by the North Carolina Medical Journal. In November 1900,

The Health Bulletin printed "A Review of Our Knowledge of Malaria," with the following editorial comment by the Secretary:

"We have printed so much in our columns on the subject of malaria that we ought, perhaps to hesitate about imposing further on our readers still more of the same sort, but malaria plays such a part in the sickness of our people that its importance is manifest, and anything on the subject that is to the point can never come amiss. But the subjoined resume of our knowledge of malaria to date, which we find in the last number of the New York Medical Journal, is so interesting, so clear and so convincing as to one cause, at any rate, of that disease—and we believe the principle cause—that we feel sure that no one who reads it will consider an apology for reprinting it necessary." (Here is evidence that the thinker has accepted the proof—though with a certain faint reluctance to "lay the old aside"—that malaria is not a water-borne infection, but is transmitted from man to man by the bite of the *Anopheles* mosquito).

One constant concern of the State Health Officer in the nineties and early in the new century was the problem of smallpox. It hardly seems believable to us, when smallpox has almost been relegated to the list of forgotten diseases, that it could constitute the problem it did then. In the Bulletin for December 1897 appeared the following gently ironical notice:

Smallpox

"Smallpox, it is said, is prevailing in thirty counties of Georgia, some of which are quite near our border, and it has also made its appearance in Rock Hill, South Carolina, which is also quite close to us. We would suggest to the Superintendents of those counties near the infected districts the advisability of encouraging, as far as possible, among their people a panic on the subject and, under its influence, vaccinate the last one of them."

In January 1898 came an article headed, "Smallpox in North Carolina," which began, "This justly dreaded disease which has been hovering on our southern border for some time has crossed the line." The Bulletin of February 1898 continued the discussion on

smallpox. In March 1898 The Health Bulletin stated that no new cases of the disease had been reported and the disease remained fairly quiet during the rest of the year. But in May 1899 the situation was sufficiently grave to warrant the President's appointing a committee to personally inspect the situation, and in his report to the Conjoint Session, the Secretary gave a complete report of the smallpox situation and appended thereto a table showing the smallpox record in North Carolina from January 12, 1898 to May 1, 1899. In May 1900, another table was printed showing the number of cases for one year (2,806 to be exact, with 65 deaths, which seems incredible to us). The disease continued to flourish in spite of all the Board of Health could do to stimulate the citizens to be vaccinated. In 1900-1901 there were 1,945 cases, 1901-02 1,812 (though an editorial note indicates that there were this year in one county alone from 12 to 15 hundred cases of smallpox diagnosed by experts sent to the county which the Superintendent of Health insisted were not variola and in consequence did not report); 1902-03 4,456 cases, 1903-04 5,370 cases, 1904-05 7,375. And the Secretary of the Board felt that they were not getting reports on all cases!

Through all of the trying times when smallpox loomed so large on the public health horizon, The Health Bulletin continued its efforts toward enlightening the people to the point where they would accept vaccination—efforts which it continues to the present time, knowing that an unvaccinated population is at the mercy of smallpox.

Nor were the other epidemics ignored. Faithfully recorded in the Bulletin is the yellow fever scourge which so terrified residents of the eastern seaboard during the years 1887-88. In it, too, appeared the influenza epidemic of the first world war years and the threatened poliomyelitis outbreak of 1935.

And as the years rolled by, The Health Bulletin undertook to aid in the eradication of hookworm disease, the prevention and cure of tuberculosis, the prevention of ophthalmia

neonatorum (the blindness of the newborn), as well as many, many others.

In connection with ophthalmia neonatorum, it is interesting to read the article on legislation looking toward its prevention which appeared in The Health Bulletin for July 1894, in which the following resolutions adopted by the Conjoint Session of the Medical Society with the State Board of Health were quoted:

"Resolved: That it is the sense of this Conjoint Session of the State Board of Health and the State Medical Society that legislation tending to lessen blindness from this disease (ophthalmia neonatorum) similar to that already enacted in a number of other states, is desirable,

"Resolved: That the Committee on Legislation of the Medical Society be requested to use their best endeavor, if in their judgment after the assembling of the Legislature in 1895, it be wise to agitate the subject, to secure the enactment of such a law."

It is also interesting to read Dr. Lewis' editorial comment:

"We are not sanguine enough to believe that any law on this subject can be practically enforced in the present state of public opinion, but we believe that its presence on the statute book and distribution throughout the state will do good, will enlighten the people and save some innocent little ones from a life of hopeless blindness."

So public health proceeded in those days—persuading, influencing, wisely, though sometimes slowly, creating a public opinion on matters of health. It was a long time before these particular efforts bore fruit—not until 1917 was the present law enacted regarding the prevention of ophthalmia neonatorum.

Through the years the Bulletin kept abreast of the times. As newer methods of prevention and treatment were evolved, that information was made available to its readers. And as times and conditions changed, the Bulletin changed with them. During the days in which any discussion of the venereal diseases was rewarded with lifted brows and a decided sense of shock, the Bulletin had little to say on the subject, which has since come to be regarded

as one of our major public health problems. But in September 1918 it raised its voice. Dr. Rankin's editorial speaks for itself:

"But the world moves, things and conditions change and war accentuates changes. And so conditions arising out of the war, or, more truly speaking, revealed by the war, demand that the long silence be broken."

The time was ripe, the people ready, and the Bulletin went to war against the venereal diseases.

While it has held fast to the policy of attack and counter-attack against those major and ever present diseases and conditions dangerous to the public health, the Bulletin has been a flexible publication, guarding its readers not only against the scourges of mankind, but also against those minor and more or less intermittent ailments which attack the unwary. What to do to avoid poison ivy, how to prevent sunburn, sleeplessness, worry, the common cold, heartache, headache, freckles and corns—all have been admitted to its pages. For it has never been simply a prophet, warning of pitfalls and dangers to come, it has been also a homely visitor, conscious of human frailty, full of sympathy toward human suffering—major and minor, tragic or semi-tragic. There has been humor and warmth within its covers.

Its realization of one phase of human frailty, the constant seeking for an easy cure which appears to be inherent in mankind, early let the Bulletin into a crusade which it has carried forward through all of its life—that of exposing patent medicine frauds and quack doctors. In this fight to save North Carolinians thousands of dollars as well as bitter suffering and disappointment, the Bulletin has engaged wholeheartedly. From the early days when the Bulletin carried chemical analyses of certain alleged "whiskey cures" (many of which contained large percentages of alcohol) to a time not far in the past when a fake "eye specialist" was fleecing residents of western Carolina counties, the battle has been carried on with unrelenting fury. And knowing that the basic policies of the Bulletin have remained unchanged through fifty-eight years,

there is reason to believe that the year 1986, which sees the Bulletin reaching the ripe age of one hundred, will find it continuing with youthful vigor the policy of "No quarter" to quacks and frauds which threaten the health and welfare of North Carolinians.

One of the first aims of the Bulletin, as stated by Dr. Wood back in 1886, was the education of the people to the necessity for accurate vital statistics. This was another fight in which the Bulletin engaged with vigor. It was an undertaking on which the future of the public health program depended for without a knowledge of where and under what conditions diseases were occurring, without accurate figures as to the numbers and causes of deaths within the State, the program would be hampered year after year. Its efforts bore fruit in 1913 when "The Model Vital Statistics Law" was passed by the General Assembly. With the passage of the law, another milestone was passed but the Bulletin allowed itself no let up for a law which is not known and actively adhered to cannot be a successful one and the Bulletin continued its policy of educating the people to the necessity for accurate vital statistics. It was rewarded when the State was admitted in 1916 to the Registration Area for deaths and in 1917 to the Registration Area for births (which means, simply, that according to an evaluation by the Bureau of the Census, the reporting of births and deaths in North Carolina had reached a percentage of accuracy which entitled the State to be included with other states attaining the required degree of accuracy in the collection of vital statistics).

In its efforts to inform all citizens of the State as to the value of recording births and deaths, The Health Bulletin used colorful copy! The comparison of "pedigreed hogs and unpedigreed children" is still a powerful and thought-provoking argument for birth records!

Long ago, Samuel Pepys recorded his daily life by means of a personal diary. Today that diary is still read and valued for the picture it gives of the manners and customs of a vanished age.

The Health Bulletin is a different kind of chronicle, but a very valuable one as far as public health is concerned. It, too, gives a picture of the times during which it has existed. In its issues lies the history of the public health program. In it is recorded the beginning and the gradual advancement of public health. In it one sees something of the vision held by the early leaders in this field, is given a glimpse of the labor which preceded every advancement, may even trace the steps which led to each accomplishment.

In it one is notified of the establishment of the State Laboratory of Hygiene in 1905. One sees its growth recorded through the years and the culmination of that growth in the dedication of the very modern Clarence A. Shore Memorial Building in 1940.

One sees the beginning of the venereal disease control program and after many years, the impetus given to it by the U. S. Public Health Service grants and the financial aid

of the Zachary Smith Reynolds Foundation.

One sees the first attempt at training public health workers and later, the establishment of the School of Public Health at the University of North Carolina.

It has been a faithful chronicle for after nearly sixty years, The Bulletin still holds to the policy of "informing the public as to what we are doing."

The first world war brought problems which found their way into The Bulletin. In this second world war other conditions have arisen which have been recorded in The Bulletin. Any advancements in public health science will also be recorded there for The Health Bulletin is alive and abreast of the times. It is as young today as it was in 1886. It is as awake to the conditions which affect North Carolina's citizens as it was then and as adamant in its determination to give them knowledge with which to fight for a better life and a better world.

The School at Lukens

By MISS CAROLINE E. KIDDER, Public Health Nurse
Carteret County Health Department, Beaufort, N. C.

THE doctor and I were out of the boat, down the dock, and stepping onto the ground when a girl came up to us and said, "Are you the doctor and the nurse who were to come and visit our school?" "Yes," we said. She continued, "I am the president of the school, this is the vice-president, and this is the secretary. We will go with you to the school. Can we carry anything?" This was the introduction of the Health Department personnel to the representatives of the one-room school located in an isolated spot of Carteret County and reached only by boat.

Our reception at the school house was like that given warm friends in a family's living room. The one-room school was cozy, pretty, light and airy. The children had covered an old folding screen with bright flowered cretonne. An old bench, which they had painted light green, had a rather high back and when

it was moved away from the wall, it served as a coat rack. Each child had brought a hanger from home.

From orange crates, they had made recitation arm chairs, painted them light green, and made cretonne covers for the backs. The curtains were ordinary gauze or cheesecloth, painstakingly tied and dyed by the children. A bird feeding station had been built outside one of the windows, and the children knew the name of the unusual warbler who patronized it. Effective flower arrangements were on the desk, bookcase, and table.

The children had helped raise money for books, which were carefully selected for both the children and their parents to borrow. The library was shelved in a homemade bookcase.

The seats were arranged from corner to corner for best light with the seat for a left-handed boy placed so that the light came from

his right. On the wall was a map of South River watershed with the location of the children's homes marked on it. All the children helped to make the map.

Around the piano, which had been lent to the school, the children gathered and sang with low, sweet voices, giving themselves and others the beauty of sound.

Each boy and girl served on a committee. These committees covered activities such as sweeping and dusting, preparing and serving lunch, cleaning blackboards, arranging flowers and caring for their containers, checking on the ventilation in the room, cleaning toilets, making maps, caring for wraps, desks, stove, and playground, and meeting visitors. The titles of the various committees, together with the names of their members, were written on the blackboard.

The teacher, Miss Grace Wilson, said, "We keep the room just as clean as we know how to keep it. Yes, we have a special place for the dust cloths and the mops. Each time after we use them, we clean them and put them away. The cleaning program also provides that the tops of the desks be washed at least three times each week, that the windows be kept clean, and that curtains and flower vases be washed. Of course, the children are as clean as the room."

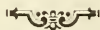
A stand had been built around the pump

and a trough had been constructed beside it, and each had been painted light green. Each child washed his hands with soap before lunch and was supplied with paper towels and napkins for his desk at lunch time. The playground was kept in an orderly manner and the toilets were spotless and odorless. There was a regular time for each pupil to be excused.

As we talked with the teacher, answers to questions came like this: "We are living the health project for we believe that schools should be places where we want to live. For instance, one day at recess we had carrots which we scrubbed and divided lengthwise. The children said, 'We shall plant some of these'. We are evaluating what we do, for example, we found that curtains need careful measurement as we had to make them over several times."

"Making puppets, which is to be our next recreation project, will require cooperative effort from all of us. Perhaps our outstanding physical needs are the balanced diet, the prevention and cure of infected tonsils, and dentistry."

Peace and happiness were there in the Lukens School. Democracy was visibly at work. Alert, and appearing consciously capable, the children and the teacher carried on their school activities.



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MABEL PATTON, *State Membership Representative*
State Board of Health, Raleigh, North Carolina



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The following special literature on the subjects listed below will be sent free to any citizen of the State on request to the State Board of Health, Raleigh, North Carolina.

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months to 2 years.
Diet List: 9 to 12 months; 12 to 15 months;
15 to 24 months; 2 to 3 years; 3 to 6
years.
Instruction for North Carolina Midwives.

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CARL V. REYNOLDS, M.D., State Health Officer

JOHN H. HAMILTON, M.D., Acting Editor

In-Service Training

By

W. P. JACOBS, M.D. Director
School-Health Coordinating Service
Raleigh, North Carolina

GENERAL

THE School-Health Coordinating Service has been operating in North Carolina as a joint activity of the State Department of Public Instruction and of the State Board of Health since 1939. Its purpose is to train teachers to do a large share of the health instruction, and in cooperation with local health and school departments, to simplify and facilitate health service in respect to school children. It is planned to achieve this training through three sources: the Teacher Colleges, the Summer Conferences, and the In-Service Training.

Health instruction in the Teacher Colleges is being developed and much preliminary work has been done; two colleges have already assembled a suitable faculty; one college is prepared to give the instruction as soon as a suitable curriculum is set up. The idea of training teachers to teach health while they are receiving their teacher-training instruction is fundamental and essential to the proper development of school-health work. In North Carolina there are three teacher colleges for white people, three for Negroes, and one for Indians; but practically all universities and colleges train teachers.

Health instruction in Summer Conferences has been given for five years in two white and two Negro colleges. The conferences have proved to be beneficial to the teachers who attended. Since the war began, there has been an increasing difficulty in getting white teach-

ers to go to the conferences, as they are interested in doing war work, or work related to the war, during the summer months, and there is considerable reluctance to discourage this patriotic attitude. On the other hand, it is clear that many of the teachers who could and would like to attend, do not learn about the conferences. Better means of informing the teachers are being devised. The conferences are held at: The University of North Carolina, Chapel Hill; The Woman's College, Greensboro; North Carolina College for Negroes, Durham; and Bennett College, Greensboro.

IN-SERVICE TRAINING

This subject occupies most of the time of the School-Health Coordinating Service Staff, and as a consequence is gradually developing a definite procedure. During the school year of 1943-44, the city of Rocky Mount and the counties of Nash, Edgecombe, and Pitt were visited. An average period of two months was spent in each area, as follows:

Rocky Mount,* Sept. 15 to Oct. 29

Nash County, Nov. 1 to Dec. 21

Edgecombe County, Jan. 2 to Feb. 25

Pitt County, Feb. 29 to April 28

*And adjacent schools in Nash and Edgecombe counties.

The method of selecting counties and the detailed procedures which are used after reaching the county are questions which are frequently asked; an endeavor is made to answer them in this article.

One of the early plans called for the selection of a group of contiguous counties in various parts of the state in the hope that work done among this group would gradually spread to adjoining counties. As a result of that policy, there are, in addition to individual counties throughout the state, one group of five contiguous counties in the Piedmont section and one group of six contiguous counties in the eastern section of the state. Our program for 1944-45 calls for a five-county group still farther west (Catawba, Lincoln, Cleveland, Rutherford, and Polk).

Among the first considerations in selecting a county or group of counties is an understanding of the local school and health organizations. Both should be satisfactorily organized and reveal a cooperative attitude toward each other. The counties are then visited one by one. Joint conferences are held with the school and health authorities and the whole school-health program is explained. If the superintendents and the health officers are interested and desire the help of the school-health organization, an informal invitation to that effect is given. No work is started in any county unless the authorities are desirous of having it. It should be added that rarely has a county been found which was not interested. Real difficulty has been experienced in making a choice among the numerous invitations which have been received.

When a county has been selected and the date chosen for beginning the work, arrangements are made with superintendents and health officers for two preliminary conferences, one with the principals and one with the teachers. The principals meeting is sponsored by the superintendents of schools and the County Health Officer. At this meeting the school-health procedure is explained to the principals and suggestions are invited from them. Before this meeting ends, the superintendent and his principals divide the county schools into groups of 40 to 50 teachers who

can meet at a central school, thus conserving time and gasoline. The city schools constitute one group. This meeting is held about one month before the work begins.

All teachers in the county attend the teachers meeting as do all the health department staff. Each member of the School-Health staff then states in turn what he or she plans to do when a visit is made to the individual schools, and comments are invited. In this meeting, the teachers get acquainted with the program and procedure and with the School-Health staff.

When these two meetings are completed, it is assumed that the superintendent, the principals, the teachers, and the county health officer and his health staff are well acquainted with the school-health program and the measures which are to be followed in the county and city. Every teacher and health department member is provided with a mimeographed copy of the group conference meetings (See program below) with dates, times, places, subjects, and speaker; and as a consequence there has been a minimum of misunderstandings.

The group conferences are eight in number and are held at the last hour of the school day. In one county, two groups met in the same afternoon at the same place but at different hours. This was useful as it enabled the group conferences to be completed earlier and allowed more time for individual visits to schools by the staff members. It also saved gasoline as the number of journeys was cut in half. When this was done the last two hours of the school day were used plus the time required for the most distant school to reach its particular group center. Not more than two group conferences were held for any school during one week and sometimes there was only one meeting.

As an illustration, Nash County was divided into four groups with centers at Nashville, Red Oak, Spring Hope, and Middlesex-Bailey. The group conference program for the Nashville group follows:

ALL MEETINGS AT NASHVILLE HIGH SCHOOL AT 3:00 P.M.

Program In-Service Training

Nashville Group

(Nashville, Oak Level, Coopers, Macedonia, Castalia)

November

Tues.	2	Nutrition, General.	Miss Outlaw
Thurs.	4	Nutrition, Elementary and High School,	Miss Outlaw
Tues.	9	Physical Education,	Mr. Spencer
Wed.	10	Physical Education, Primary and Grammar,	Miss Moore
Tues.	16	Communicable Diseases, High School,	Dr. Chamblee
Thurs.	18	Communicable Diseases, Primary and Grammar,	Dr. Jacocks
Tues.	23	Health Habits,	Mr. Spencer
Mon.	29	Healthful School Living,	Dr. Jacocks

Dates for **SCREENING, RE-VISITS, and FILMS** will be made with individual principals and teachers.

As will be seen from the above program, the subjects discussed were: Nutrition (2 meetings), Communicable Diseases (2 meetings), Physical Education (2 meetings), Health Habits, and Healthful School Living. Later in the year, it was thought preferable to limit Communicable Diseases to one meeting and to include one group conference talk on Screening. This proved to be an acceptable change.

The subjects taught were Health Service; Health Instruction; Healthful School Living; Nutrition; and Physical Education.

Listed under **Health Service** was **Screening**, which elicited information concerning height, weight, eyes, ears, hair, skin, scalp, nose, throat, neck, teeth, hands, feet, signs of anemia, signs of malnutrition, posture, orthopedic defects, and mental habits; home visiting; defects and their correction.

Listed under **Health Instruction** were (a) **Personal Hygiene**, which included information regarding such habits as protection needed when sneezing and coughing, hand washing before eating and after using the toilet, eating, resting, sleeping, playing, clothing, cleanliness, safety; and (b) **Communicable Diseases**, which included instruction concerning such diseases as common colds, measles, mumps, acute rheumatic fever, whooping cough, diphtheria, scarlet fever, septic sore throat, hook-

worm, malaria, syphilis and gonorrhea, tuberculosis, pellagra, and typhoid; and immunization against smallpox, diphtheria, and typhoid fever.

Listed under **Healthful School Living** were such subjects as drinking fountains, wash basins, toilets and urinals, heating, ventilation, lighting, cleanliness, janitor service, lockers, drying room, isolation room, examining room, teachers' rest room, tables, seats, first aid equipment; and the conditions of playgrounds and lawns.

Listed under **Nutrition** were talks to teachers on nutrition problems as found in school children; on methods of teaching nutrition to high schools and to the elementary school grades; on lunches brought from home, and those served in the lunchrooms. All these talks were supplemented by practical demonstrations.

Instruction on **Physical Education** was divided into two groups: (a) **Elementary Schools**, which included organization and administration of a physical education program; methods and materials in physical education; activities such as rhythms, mimetics, stunts, relays, organized team games suitable for indoors and outdoors; and (b) **High Schools**, which included instruction in health: sports and games; conditioning exercises; obstacle

courses: tumbling gymnastics with apparatus work; relays; combatives; and rhythms.

As aids to In-Service training, books on methods and materials were provided to include all the subject matter which had been discussed at group conferences, including record keeping and first aid. Films were shown. An attempt was made to set up health committees in the schools to perpetuate the work, and this effort met with some success.

Following the group conferences, and even while they were in progress, each school in the county and city was visited one or more times by members of the staff to give teachers an opportunity for personal discussion, and if necessary to demonstrate the methods which were discussed at the conferences. For example, all schools in the city and county were visited; all classrooms were entered; and the grounds were inspected in regard to Healthful School Living by a staff member accompanied by the local Sanitarian.

In addition to the visits to the schools by the staff nurses and the nurses of the local health departments, the teachers were interested in home visiting. While much good work of this nature was done, two causes militated against it: (a) after a full day's work in school, the teacher was not equal to the task of home visiting; and (b) frequently the teacher did not live in the community and hence was not available for home visits at the end of the school day.

In an endeavor to enlist the aid of outside agencies which were interested in child health, the school-health staff spoke to Parents-Teachers Association, County Medical Societies, Home and Farm Demonstration organizations, Rotary, Kiwanis, and all official and non-official groups who extended invitations. It is a pleasure to record that throughout the year, and previously, full cooperation was received from superintendents, principals, teachers, health officers, nurses, sanitarians, as well as official and non-official group agencies.

LOCAL COORDINATORS

The response by school and health organizations in counties has been most satisfactory, but it is all too evident that after the visit of the school-health staff the interest gradually died out and the situation tended to become as it was before the visit. This is the fault of no one, since no one has been designated to give the subject full time attention. Unless something which would give permanency to the work is adopted, it would be unwise to continue the school-health work on the present basis.

In order to meet this condition, it has been proposed to employ a teacher who would become responsible for this work as a permanent member of the county organization. Her prime duty would be to see that this work continues to function twelve months in the year. This proposal has been accepted by the two State Departments and by ten county and city school and health organizations. The General Education Board, a Foundation which has supported the work from the beginning, was approached. It agreed to award ten scholarships, valued up to \$2,000 for one year's training in public health to selected teachers. The training is to be given at the University of North Carolina and is to consist of didactic teaching (9 months) and supervised field training (3 months). At the end of the training, the teacher will return to the county to undertake a joint school-health program which is agreeable to the school and health authorities. One third of the salary and travel is to be borne by the County and two thirds by the State Departments in equal shares. The counties and cities are now in the process of selecting teachers for such training. The studies will begin in September, 1944, and the trainees will be ready to begin their duties in September, 1945. When this plan is fully matured, it is believed that many of the difficulties which are now found in school-health work and which have hindered its progress will be solved.

The Teachers Dilemma in the Health Education Program

By

WALTER J. HUGHES, M.D.
School-Health Coordinating Service
Raleigh, North Carolina

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THIS article is motivated by a need for a more uniform health education program in the Public Schools of North Carolina. The need has been crystallized by observations made by us for the past five years in our work with teachers throughout the state in the annual health conferences and in the senior author's experience in this field in his work in the various counties in the state.

Through the years 1940 to 1944 eight Child Health Conferences have been convened. Three were held at Bennett College in Greensboro, and five at the North Carolina College for Negroes in Durham. These conferences received financial assistance from the General Education Board. The School-Health Coordinating Service cooperated with the colleges in these projects.

As a result of our contact with the teachers, nurses, physicians and Jeanes supervisors we were able to understand and appreciate some of their problems. These associations formed the basis for our opinion concerning existing difficulties in furthering health education in the Negro schools. It became increasingly obvious that the in-service teachers of the state have little unanimity of thought on how they are expected to participate in the school-health program.

It is true that teachers are becoming more health conscious and possibly better informed. Notwithstanding this, the work in health education is not as effective as it might be. As we see it the program suffers from a lack of understanding on the part of the individual

teacher of the area of her responsibilities and functions.

Everywhere we have conferences emphasizing school health, industrial health, mental health or a variety of other healths. It must be imparted to the teacher that these various segments are convenient partitions for the final emergence to the broader field of public health education.

Lately there has been aroused a consciousness of the public health facilities available for positive health teaching. This general awareness has pointed to the teacher as the definitive member in promoting and extending the health program to the school child. As a result of this wave of enthusiasm, the teacher has too often been designated as the pack horse to deliver the whole program. To be effective a school-health program must represent an integral part of the general community health program formulated to meet the health needs of a specific age group. If this be true the teacher cannot reasonably be expected to shoulder the entire health load as is so often advocated. If the teacher is adequately prepared to offer health instruction incidental to her regular teaching, an assumption which is often contrary to existing circumstances, she is not sufficiently apprised of her role as it relates to peculiar health problems of her respective community.

The present syllabus of instruction was overcrowded before the recent health education instruction was recommended. The dilemma which confronts the teacher therefore is

not primarily one of a lack of knowledge, but is one of finding an opportunity to emphasize health instruction in this crowded curriculum. In a word teachers have heretofore had their hands full with regular classroom instruction which was devoid of health teaching. When the Tidal Wave of Health Education arrived, the teacher was literally swamped in an endeavor to include health teaching in an already over-burdened classroom charge. As a result the teacher has responded to health teaching as an added duty not fully appreciating her real role in the school-health program.

What then are the teachers' functions in the general school-health program?

At the outset it is not expected that the teacher should possess the technical knowledge or special skills of the nurse, nutritionist, or health and physical educator. But she should have a clear understanding of personal and community hygiene as it applies to the intellectual and interest level of students she purports to teach. The teacher in any given community should comprehend through contact with the local health department the peculiar health problems of that community and further that she should adjust her health instruction in accordance with these needs. If the teacher fulfills this function the program as employed in the school comes nearer to the general public health problems of the community.

The second function stems from the close contact existing between teacher and pupil. The teacher is in the prime position of making the closest observation of the child's healthful exterior from day to day. Therefore it should

be incumbent on the teacher to recognize readily any deviation from normal health either by direct observation or the use of various screening procedures that are taught to the pre-service and in-service teachers of North Carolina.

The teacher should know the dangers of the common communicable diseases and have definite knowledge of the value of immunization and vaccinations which prevent some of these diseases. She should be active in seeing that this knowledge is put into practice in respect to the children under her care.

She should be able to interpret the findings of the health examination of the school child to the parent. This presupposes that she be present at the examination of her students, and further, that her interest be active throughout the examination.

The teacher should function as a leader in developing the right attitudes within the student to the end that he shall cooperate with health agencies as an individual and support as a citizen the promotion of an ideal community health program.

In addition, the teacher should maintain her own health at top efficiency.

These are only a few of the simple and fundamental problems which any teacher who has an understanding of health education can put into practice. As her experience and knowledge increases, other problems which are even now present in the school, can be taken up in turn. Our objective in the article is to mention some simple health education practices which most teachers can now use to advantage in their classrooms.

(Continued from page 16)

with which we are familiar some are useful, and some are harmful; third, to establish that like all animals, and, in fact, like all living things, they must have FOOD, WATER, and proper TEMPERATURE in order to live. Let us make one more comparison. All animals produce body wastes which they must discharge. So with bacteria. The body wastes of bacteria, called poisons or toxins, are likewise

given off in the food or drink that we consume unless we take every precaution to protect the things we eat and drink from becoming infected with bacteria.

Some bacteria live in the body wastes of man and animals. Others live in the nose and throat. Although these are not the only sources of the bacteria that make us ill, they represent the homes of the most objectionable ones.

Food for Growth

By

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School-Health Coordinating Service
Raleigh, North Carolina

"I NEVER smelled anything so good as this food smells today!" exclaimed ten-year old Anne, her face alight with eagerness, as she came down the cafeteria line at the Child Health Camp at the Woman's College in Greensboro. It was lunch time and the happy voices of the twenty-four children who were being served made it quite clear to everyone that this was a pleasant occasion for them. How different the faces of these children looked now after five weeks of camp! For example, Anne was a thin child with a tired, strained expression on her little face when she first came. Even when she smiled her eyes appeared sad and her face a bit haggard. Five and a half weeks later her eyes were bright and her expression happy, as a result of play, rest and good food.

This Health Camp was carried on from the 8th of June until the 18th of July, 1944 as a part of the Child Health Conference in Greensboro.

The children, whose ages ranged from eight to eleven years were selected by the school principals of Greensboro, and the nurse of the School-Health Coordinating Service. They were chosen because they represented for the most part examples of poorly nourished children found in the average North Carolina school. A majority showed physical signs of being poorly fed over a long period of time, as evidenced by underweight, poor posture, dental defects, the condition of their eyes and skin, and their general attitude toward their school work and their play.

The primary purpose of this camp was to serve as a demonstration class for the teachers

attending the Health Conference, who observed the progress of the children from day to day. This study considers only the nineteen children who attended most regularly.

The daily program of the children was as follows:

- 7:50- 8:15 Children arrived at the camp. Got ready for breakfast.
- 8:15- 8:45 Breakfast
- 8:45- 8:55 Brushed teeth. Washrooms.
- 8:55- 9:05 Devotional. Planning Period.
- 9:05-10:00 Social Studies and Reading.
- 10:00-10:30 Health (Nutrition Lesson).
- 10:30-10:45 Get ready for swim period. Walk to gymnasium.
- 10:45-11:00 Scrub and Showers.
- 11:00-11:45 Tuesday, Wednesday and Thursday; swimming.
Monday and Friday; Physical Education, outdoors and indoors.
- 11:45-12:00 Shower. Dress.
- 12:00-12:15 Return to camp.
- 12:15-12:40 Rest on cots.
- 12:40- 1:15 Lunch.
- 1:15- 1:30 Brushed Teeth.
- 1:30- 2:25 Rest Period.
- 2:25-2:30 Washroom.
- 2:30- 3:00 Physical Education.
- 3:00- 4:00 Art, Music, Science, Library (Tuesday).
- 4:00- A bottle of milk before leaving for home.

According to this eight hour program of activities, the estimated energy expenditure for the children according to weight and age actually ranged from 719 to 1084 calories. See Table I.

Table I.

Estimated Energy Expenditures for Children During the Eight Hour Period at Health Camp

Number of Children	Age	Range of calories expended
5	8-10	719- 800
7	8-10	800- 900
4	8-10	900-1000
3	11	1000-1084

Two meals, lunch and breakfast were served to the children each day, and in addition they had a glass of milk in the afternoon just before they left camp. These meals were planned to furnish a minimum of 75 per

cent of the recommended daily allowances for the children.

Table II. gives the recommended daily allowances in shares for each dietary essential for eight, nine, ten, and eleven-year-old children.

Table II.

Recommended Daily Allowances for Specific Nutrients in Shares*

Age	Calories	Protein	Calcium	Iron	Vitamin A	Vitamin B ₁	Vitamin C	Vitamin G or B ₂
8	20	26	37	25	21	20	24	20
9	22	27	40	27	23	22	26	22
10	24	28	42	29	25	24	28	24
11	25	30	44	30	27	25	30	25

*Share Values of National Research Council Recommended Daily Allowances. Taylor, Clara Mac. Food Values in Shares and Weights. New York: The McMillan Company, 1942.

Two typical menus used are given below with the dietary contribution provided by each.

MENU I

Breakfast

Lunch

Grapefruit Juice	Lima Beans
Oatmeal	Turnip Greens
Whole Wheat Biscuits (with fortified oleomargarine)	Scalloped Tomatoes Whole Wheat Panbread (with fortified oleomargarine)
Molasses	Boiled Custard
Milk	Milk

A glass of milk in middle of the afternoon.

Share value of menu:

Calories	20.0
Protein	25.6
Calcium	53.3
Iron	40.8
Vitamin A	124.3
Vitamin B ₁	26.0
Vitamin C	43.2
Vitamin G	31.1

MENU II

Breakfast

Lunch

Tomato Juice	Broiled Liver
Whole Wheat Cereal	Buttered Squash
Whole Wheat Muffins (with enriched oleo)	Cabbage Slaw
Molasses	Whole Wheat Biscuits (with enriched oleo)
Milk	Chocolate Bread Pudding
	Milk

Glass of milk in afternoon.

Share value of Menu II

Calories	17.6
Protein	31.0
Calcium	45.8
Iron	59.7
Vitamin A	93.7
Vitamin B ₁	23.5
Vitamin C	36.2
Vitamin G	53.5

Records were kept of the amounts of food eaten by each child. From these records the nutritive value of each individual's food consumption was estimated.

Table III shows the average percentage of the recommended daily allowances that was provided for each child.

Table III.

Average percentage of the Recommended Daily Allowances Provided for each Child

	Age	Cal- ories %	Pro- tein %	Cal- cium %	Iron %	Vita- min A %	Thia- min (B ₁) %	Ascor- bic Acid (C) %	Ribo- flav- in (G) %
B. K.	8	83	98	118	133	206	119	110	160
B. G.	8	123	123	139	185	279	149	143	190
G. T.	8	81	98	114	130	140	120	97	146
H. D.	8	71	75	112	106	111	94	84	132
M. D.	8	85	98	120	130	155	103	105	155
R. B.	8	82	90	117	131	200	111	103	156
T. P.	8	82	91	117	127	170	116	103	136
D. J.	9	88	104	115	154	130	111	103	135
G. R.	9	77	103	108	124	147	111	96	141
H. C.	9	89	105	117	150	180	117	110	156
N. P.	9	77	87	108	124	159	107	89	139
S. E.	9	72	83	106	105	132	105	105	134
A. J.	10	77	102	108	130	190	102	97	131
R. L.	10	77	103	109	135	140	102	102	125
G. F.	10	75	100	107	132	130	106	105	125
L. B.	10	77	103	107	129	134	104	105	137
S. C.	10	73	90	109	107	162	100	101	125
B. D.	11	95	104	111	150	240	106	110	150
O. S.	11	105	118	117	158	219	104	114	155

At the beginning of the camp many foods were not eaten by the children, but after the first ten days scarcely any food was left on the children's plates. This was due to the fact that the children were given smaller servings of food but were allowed as many second servings as they desired except in the case of milk and dessert. Unless the child was hungry enough to eat the food served on his plate he was not given a dessert. Extra portions of bread were withheld until the other foods on the plate had been eaten. This plan seemed to interest the children and resulted in a continuous increase in the number of second helpings eaten by the children.

Weight records were kept for each child during the six-weeks period. The range in weights for the children at the beginning of the period was from 42 pounds to 73 pounds and at the end of the period from 44 pounds to 80 pounds.

Normally a child is considered to be of correct weight if he is not less than 7 per cent under weight or more than 20 per cent overweight as figured from the standard height-weight tables for a child of his size and age. At the beginning of the camp 13 children were 10 per cent or more underweight. When the camp closed only 4 fell within this range. There were 3 children at the beginning of the period who were less than 7 per cent underweight, while at the end of the six weeks period, 9 children came within this range.

One child who was 14 per cent underweight at the beginning of the period was 8.7 per cent underweight at the end. Another child, also, 14 per cent underweight at the beginning was 7 per cent underweight when the camp closed. Only three children gained as little as 1.5 pounds, but even this amount is significant for very active children during

such a short period of time.

Summary. This study of nineteen under-nourished children shows that it is possible to so change children's food habits that even in a short time, improvement in their physical well-being can be brought about. Gains in body weight are evidence of this fact. These gains are due partly to an improvement in the kinds and the amounts of food consumed each day. Caloric intake above the

daily energy expenditure is not solely responsible for the weight gains since larger amounts of protein, minerals and vitamins also contributed to this end. It is important to recognize that calories alone are not sufficient for the best nourishment of a child, but that a generous supply of other dietary essentials must also be provided daily. Only then can a child be well nourished.

Why Play

By

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HOW can I teach physical education when I don't know how to play?" is a statement that one hears quite frequently from teachers. If adults admit readily that they do not know how to play, how can you expect a child to know how to play without some training, instruction and supervision. Yet, people will say to children, "Run along and play now."

Physical education and play are closely connected, because play is a phase of a physical education program. Education today is concerned with the development of the "whole child," and if this is true, then physical education is definitely a part of the education program and should not be thought of as a special subject. Some parents and teachers feel that play is a waste of time, and this is true, unless the play activities are conducted so that the outcomes are worthwhile. Play itself contributes to the aims and objectives of physical education, but lacking the wrong sort of leadership and instruction, it becomes a detrimental factor. In keeping with other phases of the education program, physical education will result only in desirable outcomes when the learning activities are properly taught, organized, and conducted. Boys and girls need instruction in how to play. Even though the

urge to be active is an inborn tendency, skill and knowledge in playing softball are no more a part of the original nature than is the ability to read and write. You have heard boys and girls say, "What can I play now?" This brings out the fact that activities should be taught which will fulfill their desire to play.

Teachers, in planning physical education programs, should remember that the play activities should be based on the needs and interest of the child. There are certain play characteristics that are universal and these should be taken into consideration. Children in the first and second grades need physical education activities based on rhythms. They love the sing-song rhythms which help develop that sense of rhythm within their muscles. They like to impersonate and dramatize activities. Children in the third and fourth grades need hunting, chasing, and fleeing type of activities. This is the age for exploration. The fighting instinct should be guided and directed through the proper selection of games. They want to measure themselves against all kinds of obstacles—against their companions. Children from the fifth grade on are developing the team-spirit characteristic. They have that instinct of want-

ing to belong, to be a member of a gang. Play, to be purposeful, must be based on these needs and characteristics.

Children need a well-rounded program of physical educational activities. Today one hears about balanced meals and the seven basic foods which need to be included in the diet in order to meet daily requirements necessary for good nutrition. The same is true in physical education. There are several types of activities necessary for a well-rounded program which will meet the aims and objectives of physical education and which will result in children having healthy and well developed bodies.

The physical education program should be composed of several distinct phases or types of activities. Each particular type of activity makes its contribution to the total program and should be included in order to provide the balanced program necessary to meet all the needs of children. Rhythmical activities fall into several groups, such as—fundamental rhythms, walking, skipping, running, sliding, and hopping, singing games, and folk dances. Rhythms offer training in cadence and timing. Singing games and folk dances are game-forms set to music, and through folk dances are taught the social customs and habits of many different countries. Story plays and mimetics are valuable forms of physical education play activities for little children. In the lower grades, they take the place of the more formal activities. They have a universal appeal in that through the story plays and mimetics, a child imitates and impersonates incidents he has seen. They help to develop his dramatic ability. Ring games offer an opportunity to teach children social values. Low-organized team games help to teach the basic skills, techniques, and coordinations which will be needed in highly organized team games. Stunts are forms of play arising from the desire to test one's ability. They stimulate the powers of coordination, agility, and the formation of such virtues as courage, self-confidence, and determination. Relays offer opportunities for training in skills, leadership, and citizenship.

What can be done to help the classroom teacher carry on an effective, instructional physical education program? The answer to this question is In-Service Training for teachers. When a physical education program is to be carried on by teachers with limited preparation in physical education, it is essential that In-Service Training be provided. The School-Health Coordinating Service offers this training to the teachers in the counties in which it works. Two physical education meetings are held with the teachers. The first meeting is a general physical education meeting. Since most of the teachers have had little or no training in physical education, it is necessary to help them develop the right attitude toward teaching physical education and to point out the reasons why it should be considered an integral part of the school curriculum. The important aims and objectives of physical education are explained to the group with the hope that they will see the need for having an instructional period every day. The understanding of why we should do a certain thing often stimulates one to act. Suggestions are given in regard to: the organization of the physical education classes; scheduling the periods in order to make the most of the available space and equipment; types of activities—kinds of equipment; methods of teaching the various activities; and planning the general physical education program.

The second meeting with the teachers is a physical education activity meeting. The teachers actually participate in learning activities selected from the different types of physical education activities. The first thing that is done at this meeting is to demonstrate class organization by dividing the group into squads. They practice different ways of getting into squad formations. The following are the activities taught during this meeting. Fundamental rhythms are taught by clapping out the beats with the hands. So many teachers feel that they cannot teach rhythm work because they do not know how to play a piano or do not have a victrola. Rhythms may be taught very successfully by using a drum, clapping hands or by vocal count.

Children may participate in this type activity outdoors as well as indoors. In teaching singing games, it is best to teach the song during the music period, or if there is a music teacher, have her teach the words and music to the singing game. Then when they get ready to play the singing game, it is very easy to put the steps with the music, and children will enjoy it more because they learn to play it faster. The singing games taught are: **Sing a Song of Sixpence**, **I am Going to a Circus**, **Little Pony**, **Jolly is the Miller**, and **Jump Jim Crow**. Most of the folk dances are built on the fundamental rhythm steps, such as—skipping, sliding, set-hop, and running. After the children have learned the basic fundamental rhythm steps to music, it is quite simple to teach a folk dance. For example, in teaching the folk dance, **Csebogar**, after the children have learned to slide and skip to music, the only new thing for them to learn is the Hungarian turn. Methods of teaching folk dances are explained and the following dances are taught: **Nixie Polka**, **Gustof's Skoal**, **Csebogar**, and **Virginia Reel**. The ring games taught are: **Cat and Mice**, **Run for Your Supper**, and **Old Man of the Sea**. In selecting ring games, it is important to keep in mind the fact that you want a game that will offer the most

activity to the largest number of children. Quite frequently we overlook the fact that most of the ring games have only two children active at one time, the runner and the chaser; and the rest of the class just idly stand by. Two team games, **Kickball** and **Batball**, are taught in addition to the above activities.

It has been found that there is a great deal of carry-over from this type of meeting. Teachers are going back to their schools and teaching the games that they learn how to play at this meeting. They know how to organize their classes and how to teach, because they have had the actual experience of playing. Often when one learns to play a certain type game or folk dance, this serves as an incentive to learn other games and thus gives one self-confidence in teaching physical education activities which she might not have had before.

When one stops and thinks of the joy and happiness which comes from play as well as the personal and social values, the realization is evident that we can do more, and we must. We must see to it that opportunities for training and instruction in wholesome play activities are provided for all children in the physical education program.

Things You Should Know About Bacteria

I. Know Your Enemy

By

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(This is the first of a series of five articles dealing with bacteria and their relation to the proper handling of food. The other articles in this series will appear in subsequent issues of *The Health Bulletin*.)

INTRODUCTION

WE do not have to be reminded from day to day who our enemies are or what they would do to enslave us if we did not resist them. That is simply because we

know our enemies. They are people like ourselves—or are they? We know that to prevent being overcome by them we must do certain things: build ships, aeroplanes, tanks, guns, and many other articles of war. These are the

tools with which we defend ourselves. Well do we understand these things, and each of us is doing all he can to protect his home and family. But our present enemies of war have only been just that for the past few years. When we have won this war they will no longer be our enemies. They may, in fact, become our friends.

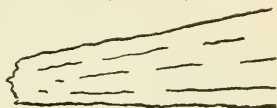
We have, however, a more formidable enemy than those with whom we now wage war. They are an enemy we do not easily understand. They are an even more treacherous enemy because they give no warning of when or where they will strike next. They are more difficult to deal with because we cannot see them as we can see our enemies of war. These are our enemy the BACTERIA. It is almost unfair to think of all bacteria, or germs, as they are sometimes called, as being our enemies, because, like people themselves, some are our friends. But, despite the fact that there are many more bacteria that are helpful than harmful, we cannot hope to obtain "UNCONDITIONAL SURRENDER" from the few disease bacteria. Instead, we will have to learn to live with them, and to do so means we must also learn to FIGHT THEM WITH KNOWLEDGE. Disease bacteria wage constant war against us. If we are to build our defenses we must know all we can about them.

BACTERIA ARE WEE BEASTIES

WHAT ARE BACTERIA and WHERE DO THEY LIVE? Both are difficult questions to answer, and both are even more difficult to understand. Let us try to answer both questions by comparing bacteria with something we all know and understand. Let us compare them with certain animals. There are probably some animals even larger than an elephant, and there are certainly some animals much

smaller than an ant. There are some animals so much smaller than an ant that we cannot see them except under a powerful magnifying glass. That's how small bacteria are. Perhaps another comparison will help to establish in our minds how tiny bacteria really are. If we could put a needle, some dust, and some bacteria under a magnifying glass they would look something like this:

NEEDLE



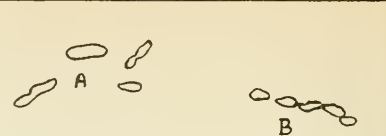
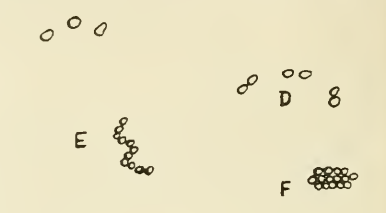
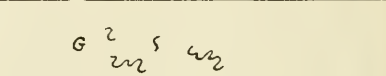
DUST



BACTERIA



Thus, we can realize that bacteria are very small. They have on occasion been referred to as "WEE BEASTIES," because they are so small they live almost everywhere: on and in our bodies, in the soil, in the air, and in the seas and oceans. Let us make a still further comparison of bacteria with animals. Certain animals, as we well know, have four legs. Others have only two legs. Still others have no legs at all but have fins with which to get about. We readily recognize such animals by their forms. So with bacteria. Some bacteria are shaped like a cigar or cigarette and are called BACILLI. Others are shaped like a tennis ball and are known as COCCI. The third and last type are those that look like a cork-screw. These are known as SPIRILLI. Although it is not necessary or important to remember the names, it is helpful to know that bacteria have only three different shapes.

<p>BACILLI:</p> <p>“A”—microbacilli</p> <p>“B”—streptobacilli</p>	
<p>COCCI:</p> <p>“C”—micrococci</p> <p>“D”—diplococci</p> <p>“E”—streptococci</p> <p>“F”—staphylococci</p>	
<p>SPIRILLI:</p> <p>“G”—spirilli</p>	

Germs, like all living things, reproduce themselves. They multiply simply by dividing in half—one germ divides through the center, forming two germs. When conditions are favorable for the growth and reproduction of bacteria, they can multiply themselves every 20 minutes. It is because of this rapidity of multiplication that these unwelcome guests should not be allowed to get into the foods we eat.

THERE IS SOME GOOD AND SOME BAD IN EVERYTHING


Certain germs are helpful, some are harmful, and many are simply useless. An example of the useful germs are those which sour milk and make possible the manufacture of various types of cheeses. Pickling of tomatoes and cucumbers is another illustration of the action of useful bacteria. There are some germs which live in the soil that are useful because they breathe the nitrogen in the air and fix it in the soil, thus fertilizing the land. The manufacture of wine, the curing of meats, and even the production of medicines are all illustrations of the action of useful bacteria. The harmful bacteria are the ones with which we are most concerned. They are the ones that we must guard against. They will make us sick and even kill us

unless we use certain tools to fight them off. The tools we must use are not the tanks, guns, and aeroplanes we use against our enemies of war. They are simply the tools of privation. These are the FOOD, WATER, and proper TEMPERATURE that all germs must have if they are to live and reproduce. We protect some foods against bacteria by drying, such as boxed crackers and dried fruits. Once the water has been removed from such foods, bacteria are unable to live. Most foods are protected by heating them to such high temperature that bacteria cannot survive. Canned foods are preserved in this manner. Fresh foods, such as tomatoes, meats, and dairy products, are protected by refrigeration at temperatures sufficiently low to prevent any growth of bacteria. Thus, we see that one way to wage war with the disease bacteria is simply to remove one or more of the necessary factors needed by them to sustain life.

JUDGE THEM BY THE COMPANY THEY KEEP

We have made several comparisons of bacteria with animals: first, to establish that they are so much smaller that they can only be seen under a powerful magnifying glass; second, to establish that like many animals

(Please turn to page 8)



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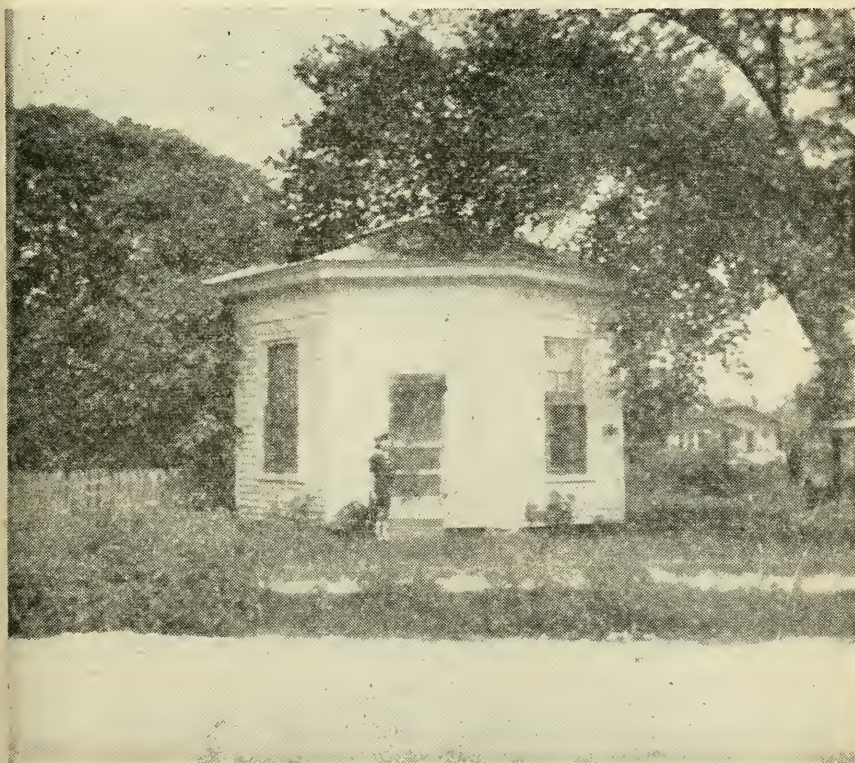
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The State Board of Health publishes monthly THE HEALTH BULLETIN, which will be sent free to any citizen requesting it. The Board also has available for distribution without charge special literature on the following subjects. Ask for any in which you may be interested:

Adenoids and Tonsils	German Measles	Sanitary Privies
Appendicitis	Health Education	Scabies
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SPECIAL LITERATURE ON MATERNITY AND INFANCY

The following special literature on the subjects listed below will be sent free to any citizen of the State on request to the State Board of Health, Raleigh, North Carolina.

Prenatal Care.	Baby's Daily Time Cards: Under 5 months;
Prenatal Letters (series of nine monthly letters).	5 to 6 months; 7, 8, and 9 months; 10, 11, and 12 months; 1 year to 19 months; 19 months to 2 years.
The Expectant Mother.	Diet List: 9 to 12 months; 12 to 15 months;
Breast Feeding.	15 to 24 months; 2 to 3 years; 3 to 6 years.
Infant Care. The Prevention of Infantile Diarrhea.	Instruction for North Carolina Midwives.
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CARL V. REYNOLDS, M.D., State Health Officer

JOHN H. HAMILTON, M.D., Acting Editor

A Tested Method For The Teaching Of Nutrition In The Elementary Schools*

By

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RECENTLY, a college professor asked, "Do you believe in this vitamin fad? There is so much talk about vitamins, are they any good?" Since the beginning of the war the interest in nutrition has risen so rapidly it is not surprising that, to some, it should seem like a fashion of the hour. Relatively few people have taken much interest in nutrition in the half century since it has been recognized as a separate science, and as a consequence many think of it as an idea which has developed as quickly as, and along with, other war emergency measures. They do not realize that the information we now possess about the nutritive value of foods is the result of long years of painstaking research in scientific laboratories and of investigations that have been checked and rechecked before they were ever announced to the public. The extensive campaign that has been launched by governmental and private agencies and by commercial advertisers to try to teach the public how to choose their food wisely came as a surprise to some and has often been misunderstood. As one perplexed housewife asked, "Is the government suggesting that we eat all these foods now to prepare for the rationing of other foods later?"

The war is partly responsible for this extensive publicity because the selective service

examinations revealed some embarrassing facts about the nutritional status of many of the draftees. Surveys made and reported by the United States Bureau of Home Economics some years ago had pointed out these same facts but they did not arouse the general concern that the draft reports did. The tremendous demand on manpower made the health of the nation take on a new meaning and directed attention to the role of nutrition in helping to keep our citizens physically fit for service.

There is abundant evidence that malnutrition does exist in the United States in all stages from the mild to the severe. The reasons for this condition are many but its continuance is not necessary if the people of this country are sincerely interested in eradicating it. The United States is capable of producing sufficient quantities of the kinds of food that will help promote good health, at a price which would make them available for all. One of the reasons why this has not been done before is that the demand for such foods has never been great enough to make it profitable for the farmer to produce them. This limited demand has resulted, in part, from the fact that people become ready slaves to food habits established

*Reprinted from Health and Physical Education—Vol. 14, No. 9.

in their youth, and our educational system has been lax about assuming any responsibility for the development of good food habits in children. Demand for the right kinds of food can come about only when people, in addition to learning the facts of nutrition, recognize the significant relationship between food and health.

Those persons whose food habits have been influenced for many years by customs characteristic of certain sections of the country, or by racial backgrounds, will not shift readily from their usual diet to one recommended by the government. It will not seem important to them to discontinue their usual pattern of food selection just because a poster or an advertisement informs them they should. The widespread nutrition campaign is excellent and necessary, but it needs the assistance of every civic agency in this country to convince all persons of the benefits derived from continued personal use of the information.

Probably the most effective agencies to help in building up an understanding of the true value of nutrition are the schools, particularly, the elementary schools. Schools have the unique privilege of sharing in the training of nearly every child in this country. The influence they exert penetrates farther into the home than is sometimes recognized. The particular period of time when a child is in the elementary school is ideal for nutrition teaching, for good food habits in early life have been scientifically proven to have a marked effect upon health, growth, and mental alertness. Whether or not a child accepts cheerfully the kinds of foods he should eat depends largely upon the way nutrition is presented and the degree of importance he is taught to attribute to the relation of food to health.

The sole reason for teaching nutrition is to help individuals develop and permanently establish good food habits. Good nutrition teaching is not a simple matter of implanting scientific facts in a child's mind accompanied by written or verbal information about how he should use them in selecting his daily meals. Nor is the teaching made more effective

by repeating the same information year after year, changing only the wording as the child progresses from one grade to another. Repetition is a valuable teaching aid if it is not over-worked, but it needs to be used ingeniously if it is to succeed in retaining a child's interest. As one child remarked when he was assigned a section to read on calcium, "I know all that stuff. I've read about it before." Although he had been exposed to information about the importance of calcium in the diet for several years he had never learned to drink milk. The mere accumulation of facts about nutrition is worthless. Written tests are very inadequate measures of the knowledge of nutrition. The real test is made several times a day, every day of one's life.

In order to create in children a desire and will to develop good food habits, it is necessary to recognize some very important concepts of learning that are often overlooked in the teaching of nutrition. The first is the manner in which learning takes place. At a recent health conference one of the speakers, a professor of sociology, remarked that he had suddenly appreciated something he supposed he had always known. While working in a garden on his vacation, he realized that true learning is brought about through actual experience. No doubt many a victory gardener has learned the same lesson. Too often words have been substituted for actual experiences and it comes as a complete surprise to a teacher that some of the children who have passed the nutrition section of the health examination with the highest marks never eat a whole grain cereal and prefer a carbonated beverage to milk.

The second concept is that it requires time to develop habits even when actual experiences are provided. Serving tomato juice to a six-year-old just once is providing him with a good experience, but that experience may not be pleasing enough the first time to lead him to ask for tomato juice at home, or even accept it at home when it is offered to him. He needs additional opportunities to help him learn to really enjoy its flavor. Once this is accomplished then it can be expected that he

will find that particular food acceptable whenever it is served to him.

In addition to recognizing the fact that a child needs time to learn, we must realize that he cannot learn everything at once. A teacher should not feel obligated to teach in one term, or even one year, everything he knows about nutrition.

Applying these fundamental principles of learning to the teaching of nutrition to children means that only one new idea is presented at a time, and that ample opportunity is given for that idea or fact to be thoroughly understood by means of real experiences. In the actual setting up of a planned nutrition program, the needs of the children should determine the selection of the topic to be used. The amount of time allotted to the development of this material usually calls for one class period a week for ten or twelve weeks, depending upon the material being taught. Studies have shown weekly intervals between lessons to be advantageous, for this period of time gives the child an opportunity to use his information at home.

This conception of the principles involved in nutrition teaching is the result of many years of research in elementary schools to determine the best methods and materials for the teaching of nutrition to children. The late Professor Mary S. Rose of Teachers College, Columbia University, was keenly interested in teaching at this level, for she realized from her laboratory experiences the many extra benefits derived from the use of a good diet during the years of growth. She began studying this problem of nutrition education as early as 1919, and the material developed in the years between 1919 and 1932 was published in *TEACHING NUTRITION TO BOYS AND GIRLS*, a book that elementary school teachers have used extensively. In 1936 a more intensive project was begun under her direction which lasted five years and included the teaching of nutrition in all eight grades of the elementary school. The major part of this study was conducted in two schools where it was possible to follow groups of children year after year as they advanced from one grade to

another. From this study a program has evolved that is flexible enough to fit any teaching situation, a program designed to provide children with experiences that will make nutrition meaningful to them.

Taking into consideration the interests and abilities of children at various ages the program quite naturally falls into three divisions, each succeeding one based on the knowledge and experience gained in the previous division. The material is not repeated but is extended as the children grow and are able to fully comprehend it. In the first three grades of the elementary school nutrition teaching is logically concerned with the development of favorable attitudes towards the foods that boys and girls need. This is a very important part of the program for there is no period in a child's school life when it is easier to establish good food habits. The more firmly fixed poor habits become, through usage, the more difficult they are to eradicate, which means that nutrition teaching should be started as soon as a child enters school if the best possible results are to be obtained.

The fact that nearly all well children like to eat is a valuable asset and is the basis for nutrition teaching in the lower grades. Here the lessons are concerned with the foods children should know and like. Foods are brought into the classroom where the children can see them, touch them, and eat them. At this age children are not seriously interested in vitamins and minerals and calories other than perhaps enjoying the sound of the new words. They cannot possibly comprehend their significance to growth and health. But without knowing the nutritive value of the food being studied, a child can learn through experience to enjoy the taste of the food and to like it well enough to find its flavor acceptable whenever it is served. From the study made by Dr. Rose units of work were developed for children of this age level for each type of food that children should know and like. One of these units has been published.

The recommended teaching procedures are very simple; no special equipment is required, and the lessons are conducted in the regular

classroom. For example, a unit on eating a whole grain cereal for breakfast would mean that once a week at a regular time, for ten consecutive weeks, the nutrition lesson will be centered around the preparation and serving of a whole grain cereal by the children. In the first few lessons the same cereal, usually whole wheat bread will be served several weeks in succession; but either the preparation or the form in which it is served will be varied each time. The use of the same food gives the children time to learn to like whole wheat bread and the variation in serving, such as plain bread sticks at one lesson, bread and milk at another, and bread and milk with raisins added for still another. This contributes novelty and interest.

Only very small servings are ever given to the children since the aim of the lessons is to accustom them to certain flavors, not to provide them with an additional meal. There is another reason for making the servings small. Frequently, one or two children in the class will refuse to taste a new food. No child is ever forced or coaxed to accept the food, nor is any comment made about his refusal. Instead the teacher relies upon the visible enjoyment of his classmates to convince him that the food is good. This attitude invariably causes the child to reconsider his first opinion. It may require several weeks to bring the acceptance of the food, but the desire for social approval will eventually outweigh all preconceived food dislikes. Since it requires eating only a small serving of food to win the approval of his classmates and teacher and to share in their enjoyment, it is not such a difficult task. Once the food has been accepted it is merely a matter of practice on the part of the child and patience on the part of the teacher until the child learns to really like the food. Social approval, active participation in the simple food preparation, and ample time for practice are the key factors in helping a child to adopt favorable attitudes toward the foods he needs.

As children grow older their pleasure in eating continues; but by the time they have reached the latter part of the third grade or

the beginning of the fourth grade, they are also much interested in "growing." This then is an excellent time to teach the idea that food plays a part in growth and especially that the kind of food eaten influences growth. One of the most effective methods of teaching this is by feeding small animals, such as guinea pigs, chickens, or white rats. At this age children think of animals as pets and they are eager to keep them well and growing. The diets fed to animals are always very simple, limited to foods that a child could eat. For example, two guinea pigs, matched as to weight and age, might be fed a diet consisting of oatmeal, bran, and milk; but in addition one animal would be given some raw carrot to eat every day. In a few weeks' time the children will notice that the animal getting the carrots is growing very much better than the one not getting carrots.

If they are skillfully guided, they will also notice a difference in the fur, in the eyes, and in the general appearance and behavior of the animals. These differences are striking enough to be very impressive. Without further help from the teacher, the children will quite readily conclude that raw carrots help promote growth in the guinea pig, and their reaction, invariably, is to ask if they may give carrots to the animal that had been deprived of them to find out whether or not he can regain his health and in time equal the other animal in weight. His complete recovery and rapid gain in weight is sufficient proof for them of the value of raw carrots.

Such an experiment, along with the preparation and eating of raw vegetables in class provides a smooth and direct transference of knowledge from animal to child and leads to personal application because of a thorough understanding for the need of eating this type of food. There is no advantage to be gained by explaining that the difference in growth of the animals is due to vitamin C. This is not an essential piece of information for children in either the fourth or the fifth grade. The thing that is important for them to understand is that the kind of food makes a difference. Nutrition teaching in the intermediate

grades serves another purpose in addition to helping the children learn that all foods are not equally valuable for growth and health; it begins the development of an experimental attitude, which is so essential for the real understanding of the scientific facts about nutrition.

This attitude is relied upon in the teaching of nutrition in the upper grades of the elementary school. By the time the children enter the sixth grade they will, by virtue of their age and experiences, be ready to learn why **food makes a difference**. It is in these upper grades, sixth through eighth, that some of the scientific facts about the dietary essentials are taught. When children have had the experience of removing a vitamin or a mineral from a common food, have seen that substance in pure form, have observed the effects caused by depriving animals of that substance, and have watched the response obtained when this substance is returned to the diet, then they will really know its functions. If at the same time they have learned, through foods prepared and served in the classroom, good sources of the vitamin or mineral, they will have all the information they need at this time. These experiences will provide them with a far more vivid recollection and more lasting knowledge than any movie, photograph, or textbook. There is no good substitute for well organized, carefully guided experience in studying a science whose sole value lies in its practical application.

These experiences cannot be rushed. It takes several weeks for an animal to develop symptoms of a deficiency and it may take several more to restore him to health. In the meantime the use of food in the classroom answers many questions raised by the experiment and subsequently leads to the practical problem of how much of the particular essential in question is needed for their own health and the easiest way of procuring their quota. It is easy to see that a program as detailed as this would require an entire term for the study of one dietary essential, as indeed it does. While this may seem an extremely slow process to a teacher unaccustomed to such meth-

ods, experience has shown that it exerts a permanent and positive influence upon the food habits of children.

This method of teaching does not make an extra demand upon the teacher's time since the responsibility for the care of the animals can be left, and should be left, entirely to the children. The experiments conducted in class and the simple food preparation also should be delegated to the children. Never, at any time, should a lesson turn into a demonstration by the teacher. Her function is to guide, not to lead.

The teacher does, however, have two responsibilities which have often, heretofore, been considered of minor importance. First, the teacher will find it to his advantage to possess a sound knowledge of nutrition especially in the teaching of this phase of health in grades above the third. Unless he can rely upon the help of a nutritionist in planning his program, he will find it difficult to organize his material without a thorough understanding of the subject, and he will also find himself at a disadvantage when questioned by the interested and alert children. Moreover, it is extremely important that children gain sound knowledge, not distorted by fads and fancies, and a well informed teacher will be able to discriminate between sound facts and current fads.

In the second place, he must personally apply his nutrition information. He needs to examine his own diet critically. If his food choices are inconsistent with his teaching merely because of certain fixed food dislikes, then his teaching will carry little weight. If he does not believe that the kind of food eaten is an important factor for health and is not convinced that this applies to him as well as to others, then he cannot hope to be a successful teacher of this phase of health.

John Viscount Morley writes, "Success depends upon three things; who says it, what he says, how he says it; and of these three things what he says is the least important." This might well be used as a guide in the teaching of nutrition to children, for it is not so much what the teacher says that is re-

sponsible for the food habits children develop, as the way in which he presents the material and the evidence that he himself thinks the information important.

If the determination to stamp out malnutrition in this country is sincere, and intelligent

techniques are adopted to accomplish the task, then success will be assured. School teachers, more than any other single group, have the privilege and the power to shorten, by generations, the length of time this will take.

Things You Should Know About Bacteria

II. How Diseases Are Spread

By

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(This is the second of a series of five articles dealing with bacteria and their relation to the proper handling of food.)

INTRODUCTION

IN the first article of this series, "Know Your Enemy," we dealt with the size, shape, and habits of bacteria (germs). By comparing germs with animals we concluded that:

1. Bacteria are extremely small—too small, in fact, to be seen except under a powerful magnifying glass.

2. Bacteria are of a definite shape:

a. Cigar or cigarette shaped — the **BACILLI**

b. Spherical, like a tennis ball — the **COCCI**

c. Corkscrew shaped—the **SPIRILLI**

3. Bacteria can be useful, **HARMFUL**, or simply useless.

4. Bacteria produce body wastes called poisons or toxins.

5. Bacteria live everywhere: in and on our bodies, in the air, in the soil, and in the seas and oceans.

If we could carry the point of comparison of bacteria and animals one step further, we readily realize that **WE CANNOT DESTROY ALL THE ANIMALS THAT ARE INJURIOUS TO US**. Instead, we must learn to live with them. Since there are probably more types of bacteria than there are animals, we

can do no differently—**WE MUST LEARN TO LIVE WITH THE DISEASE BACTERIA**.

PLAYING INTO THE HANDS OF THE ENEMY—THE CATCHING DISEASES (Communicable)

We can enjoy an advantage over the disease bacteria which we do not have over the animals that harm us. For example, the mosquitoes which carry malaria germs can fly about unmolested. They possess legs and wings which enable them to move from place to place without the slightest concern for our feelings in the matter. Likewise with house flies, carriers of typhoid, dysentery, and other disease germs. Rats, mice, and many other objectional creatures are possessed with their own powers of locomotion—**WHICH BACTERIA DO NOT HAVE**. How then do bacteria get from place to place? If we knew and understood the answer to this question, and **PRACTICED WHAT WE KNEW**, we would have the catching disease germs licked. So important is this question that two famous doctors, Zinsser and Bayne-Jones, say that "in all communicable [catching] diseases, the two factors which influence spread are, in the first place, the transmission [movement] of the virulent [disease] bacteria, and in the

second place, the susceptibility [weakness] of the recipient [person]."

If germs are unable to move from place to place of their own accord, then it must be that we are responsible for their movements—AND WE ARE. To know and understand how this can be prevented is to practice PREVENTION. Let us consider the spread of typhoid fever, paratyphoid fever, and dysentery. These are only a few of the germs which are spread from the body discharges of the sick to the food and drink of the healthy—unless we practice PREVENTION. During the time a person is sick with one of the diseases mentioned above, and for some

time after the person recovers, the germs which caused the illness are passed out of the body in the discharges from the intestinal tract. Such a person could be, and frequently is, responsible for spreading these disease germs by means of his fingers and hands from his own body to articles of food that another person will consume. An innocent person will then have caught the disease. He now has a catching disease, and if he does not practice PREVENTION any better than the first person, he will pass his disease germs on to still another person. If we were to draw a picture of what took place, it would look something like this:

SOURCE + CHANNEL = INFECTION



This person is the SOURCE of a catching disease — typhoid fever, etc.



His fingers and hands are the CHANNEL by which he transfers the germs.



This person becomes infected because PREVENTION was not practiced.

(FIGURE I)

Thus, we can see how sheer carelessness and neglect of thorough washing after every visit to the toilet can spread disease. If an ounce of PREVENTION is worth a pound of cure, thorough body cleanliness and scrupulous attention to washing our hands before handling food and drink are amply justified.

Although catching diseases may be spread by the careless transfer of germs from wastes of the intestinal tract to foods, there are still

other ways in which this transfer of germs may occur. The mouth, nose, and throat are SOURCES of many types of germs. Careless sneezing and coughing onto foods or onto eating utensils carry with them thousands of germs on very tiny particles of water. Every cough or sneeze produces a spray so small that it cannot be seen. In this case, the chain, as in Figure I, is:

SOURCE

+

CHANNEL

=

INFECTION



The mouth, nose and throat.



The spray due to coughing and sneezing.



Infected foods, cups, dishes, etc.

(FIGURE II)

Many more examples of how we play into the hands of our enemy, the bacteria, could be given. No one would be any more or less important than any other. The weapon we have for putting a halt to this careless trans-

fer of disease germs is no military secret. PRACTICE PREVENTION by destroying the CHANNEL. Such a broken chain would look like this:

SOURCE

+

CHANNEL

=

INFECTION

Intestinal tract, mouth, nose, and throat.

Fingers, hands, coughing and sneezing.



(FIGURE III)

The channels by which bacteria get from person to person are too numerous to permit a detailed discussion of each. Some of the

most common carriers are given below in Table I.

SOURCE	CHANNEL	TYPE OF DISEASE	PREVENTION MEASURES
Intestinal tract	Hands Fingers	Typhoid fever Paratyphoid fever Dysentery	Wash your hands thoroughly after each visit to the toilet
Mouth, nose, and throat	Hands Fingers Coughs Sneezes Spitting	Sore throat Trench mouth Pneumonia Influenza Measles Colds	Wash your hands frequently; avoid undue fingering of mouth, nose, throat, and ears. DO NOT COUGH OR SNEEZE CARELESSLY
Parasites	Hogs Fish	Trichinosis Tape worm	Cook these foods thoroughly
Animals Insects	Rats, mice Flies	Typhoid fever Dysentery Food infections and intoxications	Avoid rat harborage: rat-proof and trap; avoid fly-breeding: screen
Infected people Carriers	Hands Fingers	Typhoid fever Paratyphoid fever Sore throat Colds	If ill, do not work: do not handle food: see your doctor

Let's not be fooled by our enemy, the bacteria, into believing that our weapons of defense are simple. To practice PREVENTION means constant alertness and honesty of purpose with ourselves and with each other.

"IS AN OUNCE OF PREVENTION
WORTH A POUND OF CURE?"

IF SO,
PRACTICE PREVENTION

Richlands Health Center Onslow County

By

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Onslow-Pender District Health Department
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THE following quotation from a paper written by the late Dr. Edward J. Wood of Wilmington as a memorial to his colleague, Dr. J. L. Nicholson, who died in 1918, links the present accomplishments of the Onslow County Health Department, under the direction of Dr. H. W. Stevens, with the past as is shown by this tribute to the life and work of this pioneer physician and advocate of public health:

"I think there was never in North Carolina a character more unique and unselfish than this man. He left us better by having lived among us.

"He was one of the first in this state to see the importance of hookworm disease both from a medical and an economic standpoint. It is hard to realize the far-reaching importance of his hookworm teaching among the people of Onslow County. His activities were not confined to this disease but in every public advance he was found an early devotee who applied promptly whatever there was of a preventive nature within the grasp of his people. When he lacked hospital facilities or laboratory equipment he made up for it by his painstaking study of individual cases."

The above gives a picture of the character of a man who lives on in the history of Onslow County, paving the way to a modern health center in the little town of Richlands.

In the year 1890, Dr. J. L. Nicholson found an octagonal-shaped, rather unique little one-

room building one mile from Richlands on the Miller plantation. He transported the building by ox cart to the site of what was at that time a branch of Randolph-Macon College and equipped and used it as an office. This was the first doctor's office in Onslow County, and in it he labored over his cases, making examinations, dispensing drugs, and performing his own operations.

Following Doctor Nicholson's death, the building was again moved, this time to the H. H. Henderson place on the outskirts of the town, which is its present location. With the advance of modern conveniences, plumbing and electrical appliances were installed. Through the past twenty years it has been used as an office and store room by members of the Nicholson family, but all professional belongings of their distinguished ancestor were left more or less undisturbed and there was an accumulation of much dust and dirt as is natural in a seldom-used building.

In 1941 Dr. H. W. Stevens organized the Richlands unit of the Onslow County Health Department. The county and the health department consider themselves fortunate indeed in securing for the center in Richlands the historical, odd-shaped, and quaint little building used by the late Doctor Nicholson. Naturally its face had to be washed after so many years, but it is amazing what can be accomplished by a few good ideas, ingenuity, hard work, and the application of several

coats of paint. Considering the fact that the building has only one door, and only one partition, it is surprising to step inside and find a main office with comfortable seating space, a waiting room for the white patients and one for the colored patients, and two examining rooms—all equipped with conveniently-located work tables, cabinets, plumbing, and electrical appliances. This latter greatly expedites the work of the clerk and nurse, who always keep the most modern equipment obtainable in readiness, preparing it with painstaking care and technique.

Is there anything drab about the surroundings? No! Who would not feel at home to walk into a well-screened building with light green walls and battleship gray floors—its attractiveness further enhanced by freshly-starched white curtains and screens? Even the colored patients have commented upon the comfortable surroundings which are kept so by an electric fan in summer and a modern oil stove in winter.

On Tuesday of every week, alternating white and colored Maternity and Infancy clinics are conducted by Doctor Stevens, who performs complete physical examinations and gives professional advice on maternal hygiene, infant, preschool, and school hygiene. Many service men's wives are taking advantage of this service. Also planned-parenthood advice is given to patients selected from an economic and physical standpoint. Clinics for white and colored patients are held on Thursday of each week for immunization against communicable diseases, followed by venereal disease clinics conducted by Dr. O. E. Bell of Richlands.

Meetings are held quarterly at the Richlands Health Center where the Public Health Nurses instruct midwives in the preparation of a bed for delivery, in the care of mothers before and after the birth of their babies, in the care of the new-born babies, and in the inspection of the equipment of the midwife's bag. Midwives are showing a great amount of interest in their work and are making an effort to meet the requirements set up by the State Board of Health. They also visit the maternity clinics with their patients and assist the nurse where there is need.

For fifteen minutes preceding each maternity and infancy clinic, the Public Health Nurse conducts classes for the mothers. Through discussions and demonstrations the nurse teaches the mothers about the care of the mother before and after the birth of her baby, the care of the infant, the clothes for the infant, the food essential for the health of the mother and baby, and the control of communicable diseases. The private physicians send a great many mothers in to the clinic for instruction in maternal hygiene.

The Lion's Club, Woman's Club, Ladies' Aid, Boy Scouts, bridge clubs, and other lay groups have been of great assistance in getting the clinic remodeled and set up. Many have helped with the routine clinic work of undressing patients, keeping records, making curtains and towels, and setting up equipment for clinics, and through this work have learned much about the public health program. The sterilization of dressings and other supplies is done at the County Hospital.

American People Give 30 Million Dollars In 11-Year Fight On Polio

By

THE NATIONAL FOUNDATION FOR INFANTILE PARALYSIS, INC.
120 Broadway, New York, N. Y.

IN the last eleven years the American people have contributed \$29,562,742.54 to conquer infantile paralysis, Basil O'Connor, President of The National Foundation for Infantile

Paralysis, announced today at the opening of the annual meeting of the Medical Advisory Committees of the National Foundation at the Waldorf-Astoria Hotel. At that meeting

applications for grants to carry on medical research will be considered and further plans for carrying on the fight against infantile paralysis will be made.

This money was raised through the Celebration of President Roosevelt's Birthday and the March of Dimes, held in January of each year, starting in 1934.

Sixteen million dollars, or more than half of the total given was raised in the two years of 1943 and 1944, Mr. O'Connor said.

"The increase in donations in 1943 and 1944, which probably was due in part to the high incidence of the disease, assured the National Foundation that the public wished it to intensify its activities and to widen its entire field of operations," he added.

"It's almost like waking up one morning and finding that many of your dreams have come true. This generosity of the American people permits us to proceed with an assurance we merely hoped for a few years ago. We are now able both to intensify our scientific search for the cure and prevention of the disease, and at the same time to enlarge our field army fighting infantile paralysis.

"Some idea of the scope and extent of the National Foundation's program of scientific research is shown by the fact that, since it was organized only six years ago, it has made 298 grants to 74 institutions involving 114 groups of workers, in one of the greatest scientific attacks against any disease."

During the past eleven years almost \$15,000,000 of the total raised has been left with the counties where raised to provide the best in medical care for the thousands of new patients reported each year. This averages about \$444 per county per year and \$160 for each new case of infantile paralysis reported during that period, Mr. O'Connor said.

Of the remainder of this nearly 30 million

dollars, the National Foundation received approximately 13 million dollars to conduct its program of scientific research, education and epidemic relief. One-half has been used by the National Foundation for grants in research dealing with the virus epidemiology and after-effects of infantile paralysis, education and epidemic aid as follows: virus research, \$2,053,761; after-effects research, \$1,405,292; education, \$1,179,215; epidemics, \$637,548; Tuskegee Institute, \$404,256; Georgia Warm Springs Foundation, \$825,000—total \$6,508,475.

From the first four Celebrations of the President's Birthday, which occurred prior to the establishment of the National Foundation, came a total of \$3,364,217. Of this sum, \$1,655,825 remained in the counties where raised to provide medical care for those afflicted with this disease; \$1,467,392 went to the Georgia Warm Springs Foundation, for which the Birthday Celebrations were originally conceived, and \$241,000 was given to a commission to be used for scientific research.

Estimating that the National Foundation and its Chapters have expended more than \$1,000,000 up to September 1 on the 1944 epidemic alone, Mr. O'Connor declared: "What the full cost of this epidemic will be we do not know, but certainly, in addition to what it totals this year, there will be the necessity of caring for many of its victims in years to come, meanwhile continuing to care for those of former years.

"But we do know that any scientific program, however costly, will be inexpensive and economical in the end for it will someday develop the means that will permit us to cure and prevent this crippling malady. The American people and their National Foundation for Infantile Paralysis are determined that that day will come."

Health Education In Rocky Mount

J. A. WHITAKER, M. D.
City Health Officer, Rocky Mount, N. C.

SAMPLES OF PAMPHLETS DISTRIBUTED

"No One Wants A Cold"

COLDS, influenza, sore throat, tuberculosis, scarlet fever, measles, diphtheria, pneumonia, are among the many dangerous diseases which are spread by the discharges of the nose and mouth.

To help prevent the spread of such diseases, all persons whether they have a cold or feel perfectly well, should observe these suggestions for personal hygiene.

1. COVER COUGHS OR SNEEZES WITH A HANDKERCHIEF or with tissue paper to prevent spraying germs over associates. The safe way to cough or sneeze is to lean forward toward the floor holding a handkerchief or other tissues over the mouth.

2. DO NOT SPIT UPON SIDEWALKS. Use a handkerchief or tissue paper instead. Germs of colds, sore throat, tuberculosis and of other diseases are carried on the feet into our homes where babies play upon the floor with toys which they place in their mouths.

3. WASH THE HANDS MANY TIMES EACH DAY to remove germs which might otherwise be passed on to someone else. Do not mask a cough with the bare hand except when a handkerchief or other tissue is not handy. Then wash the hands thoroughly with soapy water and rinse well.

4. DISCOURAGE THE PRACTICE OF SHAKING HANDKERCHIEFS in public.

5. AVOID USING TOWELS WHICH OTHERS HAVE USED.

6. AVOID USING DRINKING CUPS OR GLASSES WHICH OTHERS HAVE USED. Use paper cups or boiled individual cups and glasses. Sterilize eating and drinking utensils by boiling for a minute or longer.

7. ALL PERSONS WHO PREPARE OR HANDLE FOOD SHOULD BE SCRUPULOUSLY CLEAN and should follow these suggestions. Many diseases may be spread by food or milk contaminated by coughs, sneezes or even by talking over the food.

8. IF YOU HAVE A COLD, SORE THROAT, OR THE "FLU" STAY AWAY FROM OTHERS.

COOK AND STEWARD

From a public health standpoint, the proper handling of food is more important than proper seasoning. Food properly served by the waitress, using glasses and dishes properly washed and sanitized, does not make a perfect meal unless it has been properly handled.



Garland Farnell Nicholson, Jr., age 11 months, son of Mr. and Mrs. Garland Farnell Nicholson, Grandson of Dr. J. L. Nicholson, whose office in the nineteenth century is a Health Center in the twentieth century.

1. Do not "taste" with fingers. Use a fork or spoon for that purpose.

2. The refrigerator must stay cold. Do not allow temperature in refrigerators to reach more than 50° F..

3. Do not allow pies, pastries, or other food ready to be served, to be exposed to flies, dust, etc.

4. Do not "swat" flies on meat block, or surfaces on which food is handled.

5. Do not smoke or use tobacco while on duty.

6. Do not use apron to towel or "polish" dishes or glasses.

7. Do not "stack" perishables in refrigerator.

8. Keep surrounding premises clean to prevent fly breeding and harboring places for rats and mice.

9. Store pots, pans and other utensils above floor, and in protected place.

10. Do not allow dogs, cats or rodents in kitchen, pantry or storage rooms.

11. All persons who prepare or handle food should be scrupulously clean and should follow these suggestions. Many diseases may be spread by food or milk contaminated by coughs, sneezes or even by talking over the food.

12. If you have a cold, sore throat or the "Flu" do not work.

DISHWASHER

The best food, properly prepared and served, does not make a good meal unless the dishes, water glasses, silver and other utensils have been properly washed and sanitized. **YOUR JOB IS IMPORTANT**; observe the following rules:

1. Do not work if you have a cold, sores on hands, and if you have a prolonged cough, see your doctor.

2. You cannot sanitize glasses, dishes, silver, etc. without hot water or chlorine at the proper strength. Be sure that utensils, after washing, are submerged in hot water of at least 170° F. or in a chlorine solution of at least 50 parts per million for a period of not less than two minutes. While this 2-minute treatment is taking place, you can be preparing the next batch for sanitization.



Knox Winfred Foster, son of Mr. and Mrs. Floyd Foster, Grover, North Carolina.

3. Do not spit or smoke while on duty.

4. Do not handle dishes, glasses or silver unnecessarily after they have been sanitized.

5. Keep glass racks, trays and baskets clean.

6. Keep garbage cans and premises around dish-washing equipment clean and neat at all times.

7. Do not allow food particles to harden on dishes. To do so makes your job harder. Clean between prongs of fork.

8. Do not allow water in sink or dishwashing machine to become "soupy" before changing.

9. Keep your person clean and neat; wear some sort of cap to prevent falling hair. Keep fingernails clean and trimmed short.

WAITRESS

The highest quality foods, properly prepared, with the use of utensils properly washed and sanitized, do not make a perfect meal if improperly served. The handling and serving of food utensils, etc. is important. Observe the following DO'S and DON'TS.

1. Do not handle glasses, dishes, silver, etc. by surfaces that will be placed in mouth.

2. Do not smoke or chew gum while on duty.

3. Cover coughs or sneezes with a handkerchief or with tissue paper to prevent spraying germs over associates. The safe way to cough or sneeze is to lean forward toward the floor holding a handkerchief or other tissue over the mouth.

4. Do not work if you have a cold or sore throat. If you have a cold that lasts longer than 3 weeks report to your Health Officer for a chest examination.

5. Do not use side towel as a handkerchief.

6. Do not finger face, nose or mouth.

7. Do not fail to wash hands after using toilet.

8. Do not work if you have open lesions or sores on hands; keep fingernails trimmed and clean.

9. Do not handle or "fuss" with hair while on duty. Use net or bandette.

10. Be sure that table tops are clean and dry before serving.

11. Do not allow sugar, mustard, horse-radish, etc. to be uncovered and exposed to dust.

12. Change side towels frequently—everyone notices your towel.

13. Do not place finger prints on butter and edges of plates.



The Health Bulletin

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Vol. 59

NOVEMBER, 1944

No. 11

BUY CHRISTMAS SEALS

A stylized illustration of a figure in a military-style uniform, holding a large cross. The figure is depicted in a dynamic, almost dancing pose. The background is dark with a pattern of white dots. The text "BUY CHRISTMAS SEALS" is prominently displayed at the top in a bold, sans-serif font. Below the illustration, the text "PROTECT YOUR HOME FROM TUBERCULOSIS" is written in a large, bold, sans-serif font. The signature "SPENCE WILGEE" is visible in the bottom right corner of the illustration.

PROTECT YOUR HOME FROM TUBERCULOSIS

SPENCE WILGEE

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FREE HEALTH LITERATURE

The State Board of Health publishes monthly THE HEALTH BULLETIN, which will be sent free to any citizen requesting it. The Board also has available for distribution without charge special literature on the following subjects. Ask for any in which you may be interested:

Adenoids and Tonsils	German Measles	Sanitary Privies
Appendicitis	Health Education	Scabies
Cancer	Hookworm Disease	Scarlet Fever
Constipation	Infantile Paralysis	Teeth
Chickenpox	Influenza	Tuberculosis
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SPECIAL LITERATURE ON MATERNITY AND INFANCY

The following special literature on the subjects listed below will be sent free to any citizen of the State on request to the State Board of Health, Raleigh, North Carolina.

Prenatal Care.	Baby's Daily Time Cards: Under 5 months;
Prenatal Letters (series of nine monthly letters.)	5 to 6 months; 7, 8, and 9 months; 10, 11, and 12 months; 1 year to 19 months; 19 months to 2 years.
The Expectant Mother.	Diet List: 9 to 12 months; 12 to 15 months; 15 to 24 months; 2 to 3 years; 3 to 6 years.
Breast Feeding.	Instruction for North Carolina Midwives.
Infant Care. The Prevention of Infantile Diarrhea.	
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CARL V. REYNOLDS, M.D., State Health Officer

JOHN H. HAMILTON, M.D., Acting Editor

Tombstone Talk

By
T. F. VESTAL, M.D.
North Carolina State Board of Health

"A WHOLE flock in the fields perishes from the disease of one, and the pigs through infection of their number." This observation was made by Juvenal (60-140 A.D.). That tuberculosis is a contagious disease is a fact known for centuries. It remained for Robert Koch to produce the final bit of evidence in 1882 when he announced his immortal discovery of the tubercle bacillus. Much has been spent in combating the disease; much time, effort, talent, and money. This has been especially true in the last quarter of a century. And in spite of all this the disease remains a formidable foe throughout the nation today.

During 1943 it provided the doorway through which about 1500 residents of this state made their final exit. It still remains one of the chief causes of death, especially in certain age groups. A study of our death certificates reveals that two relatively small groups are particularly hard hit. They are 20 to 30, and 35 years to 44 years. The 20 year-30 year group accounts for more deaths per year than the older group (35-44). Tabulating the tuberculosis death certificates filed for the ten-year period 1934-1943, we find an average annual number of 386 in the 35-44 group against an average annual number of 480 in the younger group (20-25=246 and 25-30=234). This is graphically illustrated in Figure 1. These two groups make up the greater part of industrial employees—men and women in the most productive period of life. They are cut down by disease—many of them by death—even in the midst of life.

This tragedy is made even more ironical by the fact that they fall victims of a disease whose causative organism was discovered more than sixty years ago. No. The disease is by no means a new one. It has been known for generations. It has been a foe of mankind for centuries. The more modern weapons used in our fight against this enemy have also been in our hands for years. Of these the x-ray is unquestionably the weapon of choice so far as diagnosis is concerned. The x-ray was discovered almost fifty years ago. But cost of operation has limited to some extent its widespread use. Not until the last few years when the modern camera came along to supplement the x-ray machine has this difficulty been solved. Photo-Fluorography has now made financially possible and practical the mass x-ray of large groups. But the fact remains that basically our present weapons are the weapons we had at the close of the last century. With them we have made headway, and very definitely have gained ground. A firm beach head has been established, but the decisive battle lies ahead. There can be no compromise; no armistice. The surrender must be unconditional. The forces of the enemy must be destroyed, and final victory cannot be ours until the enemy HAS been destroyed. This cannot be done until we know where he is located.

One of the cardinal principles in military tactics is to know the strength of the enemy and to know how and where his forces are deployed. His strength can be fairly well es-

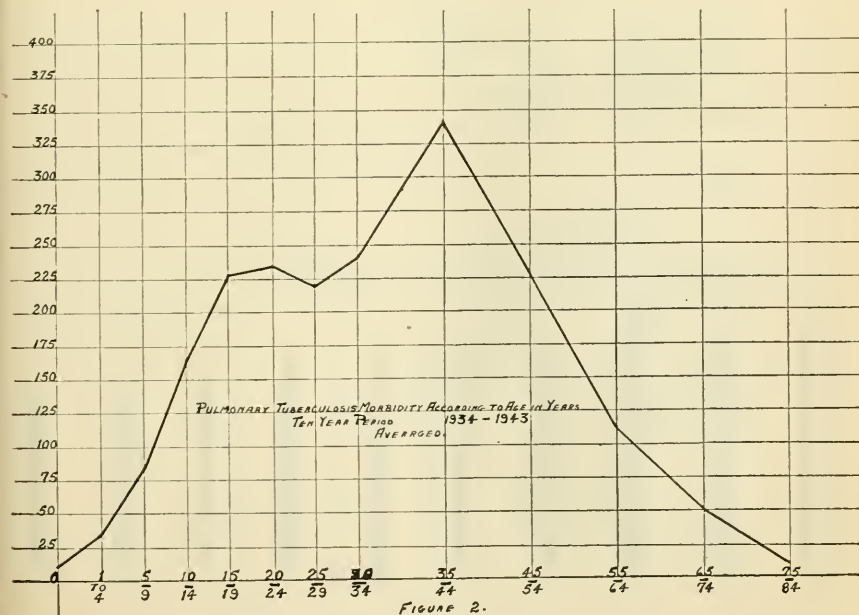
timated from facts in hand. Recent x-ray examination of forty-five thousand industrial employees in some thirty-five plants located in eleven counties reveals x-ray evidence of pulmonary tuberculosis in $1\frac{1}{2}\%$ of those examined. About one-third of these have been found to have active disease. There are almost one million industrial employees in the state. If the above group can be considered representative, there are probably five thousand cases of active disease in industry alone. One county in the state with a population of one hundred and twenty-five thousand has eighty known active cases outside any sanatorium. At this rate there are about twelve hundred known active cases in the state outside a sanatorium. There are roughly twenty-four hundred cases under active treatment in sanatoria today. This totals eighty-six hundred cases, and we have not considered the rural population outside industry. This group would probably provide another fourteen hundred cases to round out a total of ten thousand. A total tuberculosis death of 1500 last year divided into our estimated ten thousand cases would yield 6.66 cases per annual death. The National Tuberculosis Association estimates as high as 9 active cases per annual death. An estimated ten thousand cases would give

us a morbidity rate of 270. Robins¹ reports a morbidity rate of 560 in a survey of Homeless and Non-Settled Males in New York City. Reisner² a rate of 5200 in a survey of the white prison population of New York City.

One fifth of our total population is located in twenty-six cities and towns, each with a population of ten thousand and more. One-third of our annual tuberculosis deaths occurs in these twenty-six cities and towns. This is a death rate twice as great as among the remainder of the population. Further analysis of the problem reveals the fact that the Negro urban death rate from tuberculosis is almost six times as great as the white urban death rate from that cause. (White rate 27.4—Negro rate 158.8). The average annual tuberculosis death rate for the entire state for the five-year period 1938-1942 was 48.8. A review of the average annual death rate for each of the one hundred counties for the same period reveals that 38 counties had a rate higher than the general average for the state. All but three of these 38 counties lie in the eastern half of the state. This means that our greatest tuberculosis problem is located (1) in cities of ten thousand population and over, and chiefly among the Negro population of those cities, and (2) in the counties of the eastern half of the state.

DEATHS IN CITIES OR TOWNS OF 10,000 OR MORE POPULATION IN NORTH CAROLINA FROM TUBERCULOSIS, 1939-1940

TOWN OR CITY	POPULATION		NEGRO DEATHS Place of Residence				WHITE DEATHS Place of Residence			
	White	Negro	1939	1940	Avg.	Rate	1939	1940	Avg.	Rate
Asheville	37,873	13,435	28	18	23.0	171.6	25	30	27.5	72.6
Burlington	11,484	713		1			14	5		
Charlotte	69,475	31,403	43	35	39.0	124.2	14	17	15.5	22.3
Concord	12,450	3,121	4	3	3.5	112.1	6	4	5.0	40.2
Durham	36,840	23,347	38	35	36.5	156.3	13	13	13.0	35.3
Elizabeth City	7,099	4,465	9	13	11.0	246.4	2	1	1.5	21.1
Fayetteville	10,456	6,947	7	3	5.0	72.0	3	2	2.5	23.9
Gastonia	16,939	4,374	5	4	4.5	102.9	3	3	3.0	17.7
Goldensboro	9,384	7,889	12	13	12.5	158.4	2	1	1.5	16.0
Greensboro	42,968	16,343	18	28	23.0	140.7	11	8	9.5	22.1
Greenville	6,480	6,194		8				1		
Hickory	11,389	2,098		3				5		
High Point	30,618	7,872	11	6	8.5	108.0	6	8	7.0	22.9
Kinston	8,681	6,706	13	20	16.5	246.0	2	2	2.0	23.0
Lexington	8,866	1,684		1				1		
New Bern	5,976	5,839	13	12	12.5	214.1	2	1	1.5	25.1
Raleigh	31,061	15,818	20	21	20.5	129.6	3	5	4.0	12.9
Reidsville	6,655	3,732		7				2		
Rocky Mount	14,798	10,765	12	16	14.0	130.1	5	9	7.0	47.3
Salisbury	14,324	4,712	3	3	3.0	63.7	2	2	2.0	14.0
Shelby	10,887	3,150	3	2	2.5	79.4	5	0	2.5	23.0
Statesville	9,778	1,662	2	6	4.0	240.7	3	1	2.0	20.5
Thomasville	9,114	1,927	2	1	1.5	77.8	1	0	0.5	5.5
Wilmington	19,880	13,506	13	22	17.5	129.6	4	1	2.5	12.6
Wilson	9,916	9,317	25	29	27.0	289.8	3	1	2.0	20.2
Winston-Salem	43,789	36,018	73	76	74.5	206.8	11	13	12.0	27.4



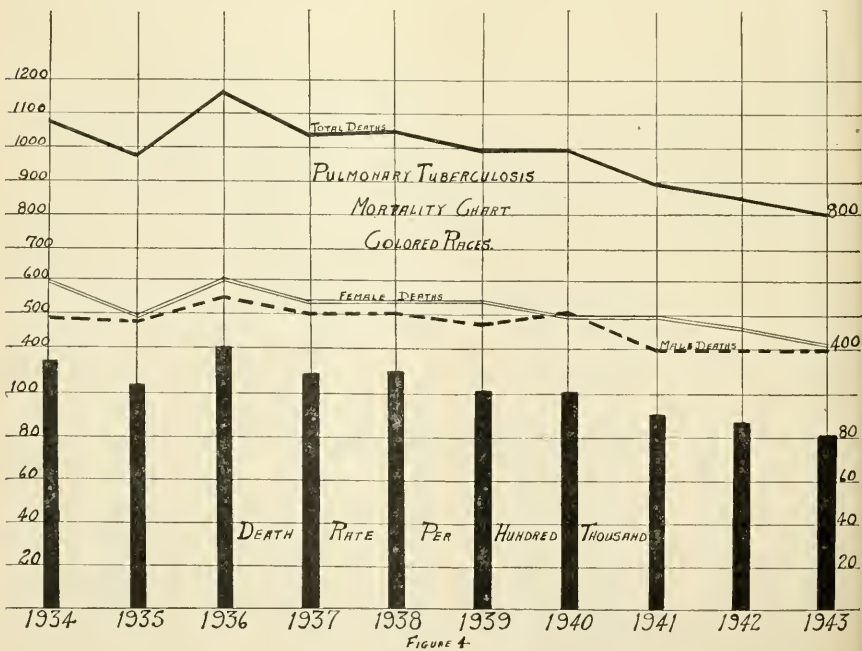
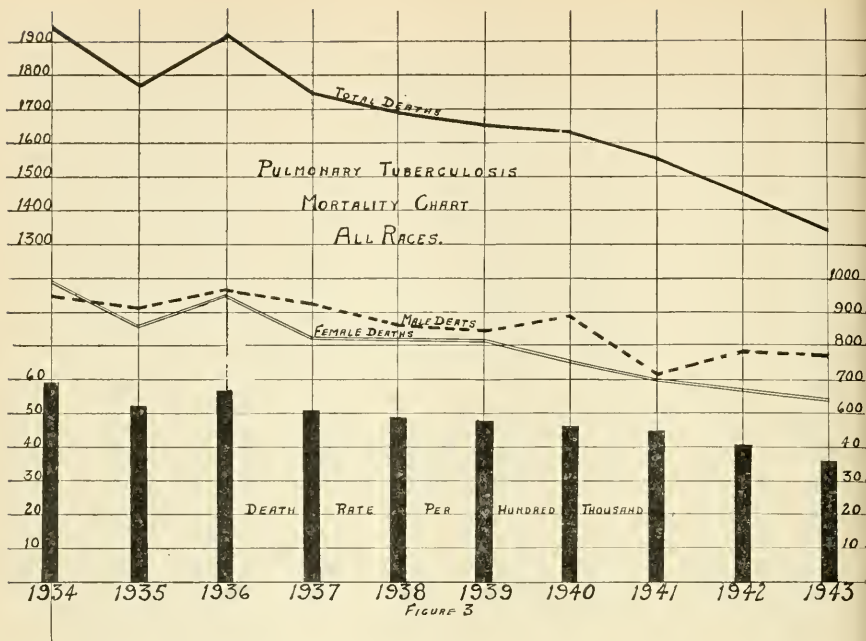
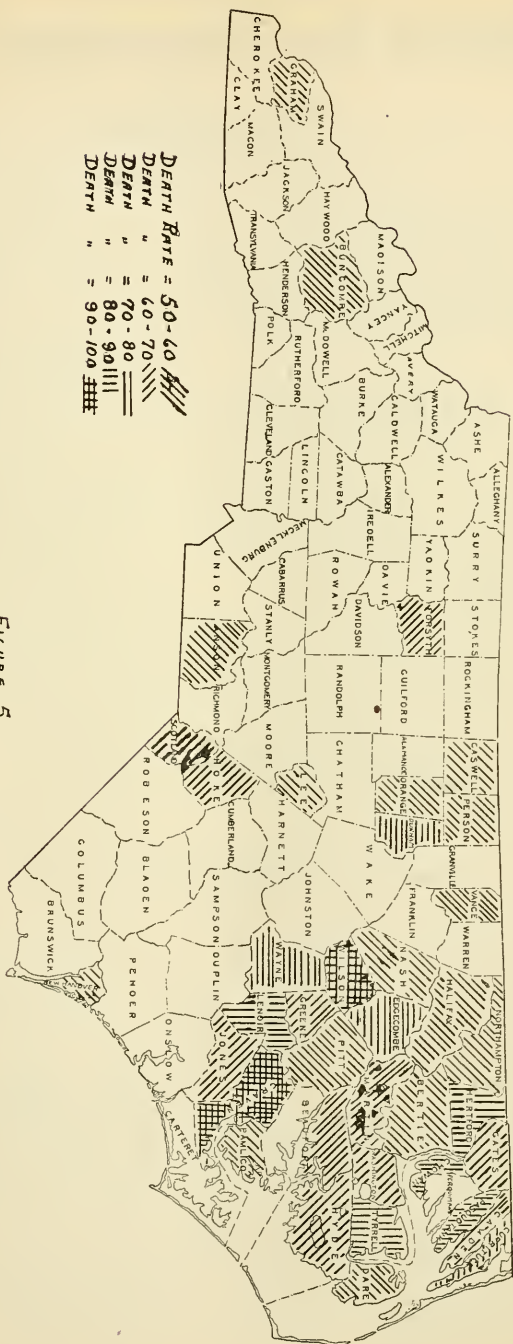


FIGURE 5.



Outlook For Tuberculosis Control

By

HERMAN E. HILLEBOE, M.D.

Medical Director

Chief, Tuberculosis Control Division

U. S. Public Health Service

THE control of tuberculosis was one of the first activities in public health in which the cooperation of the public and professional people led to substantial progress in controlling the disease by the sheer power of public education.

Early successes, however, were destined to encounter stubborn resistance as the disease retreated into strongholds less easy to discover and breach by ordinary methods of attack. The inevitable result will be a lag in the downward trend of morbidity and mortality unless some new development occurs which stirs the public interest and enables us to push ahead again.

Recent scientific advances have awakened public interest in tuberculosis control. New technical developments in x-ray equipment now make it possible to apply this essential tool to millions of the population, instead of only thousands, by means of small film mass radiography—a simple, effective and cheap method of finding tuberculosis early.

The war also has directed our attention to tuberculosis control because of the known increases in tuberculosis in war-torn European countries. Even in this country, all of the conditions favorable to the spread of the disease are present—crowding, fatigue, overwork, increased exposure, and mass migration of working people of low economic status, among whom the incidence of the disease is known to be high.

Although there is not yet any nation-wide increase in tuberculosis mortality in the United States, indications in certain parts of the country are that such a rise may soon become apparent. The stage is set then for a reversal of the favorable downward trend of mortality in this country unless something drastic is done to avert this threat.

During the past two years the Public Health

Service, working in cooperation with the state and local health departments and tuberculosis associations, has carried on pilot demonstrations in mass case-finding with small film photofluorography. The great significance of the findings has been the fact that 62% of the cases discovered in our surveys are in the minimal stage of the disease when chances for recovery are excellent with proper care. This is in sharp contrast with the fact that only 10% of persons coming to clinics or physicians for the first time for care are in the minimal stage of the disease.

We are under no illusions, however, that the discovery of one or a thousand or a million cases of tuberculosis will alter the course of the disease in this country unless the newly-discovered cases are given care and treatment sufficient to arrest the disease, or at least prevent them from spreading their sickness to others.

The inter-relationship of poverty, ignorance and disease is nowhere more clearly demonstrated than in the prevalence of tuberculosis. The greatest havoc is worked among low-income groups. The colored population is at the bottom of the economic ladder. No plan to rid America of tuberculosis can overlook the close alliance of poverty and disease in these under-privileged groups of our population.

Among the large numbers of cases revealed by mass radiography, there are more than 130,000 young men and women rejected by the examining and induction stations of the armed forces. Already many veterans of World War II have been discharged because of tuberculosis. These two groups of young people in the principal wage-earning age groups merit special attention in nation-wide planning for tuberculosis control.

Now is the time to attack tuberculosis in every part of the country, with the objective in view not only to control the disease but actually to eradicate it. The foundation for such an enterprise has been laid by the National Tuberculosis Association by its sustained and successful program of public health education. The job can be done if official and voluntary agencies will pool their resources on a local level and make a frontal attack on a broad front.

To achieve our final objective, our immediate aims must be definite and specific. Here is what must be done:

1. Chest x-ray examination for the entire population, concentrating first on the vulnerable groups and the family contacts of newly-discovered cases. This does not exclude the use of pre-x-ray tuberculin testing among selected groups with low infection rates.

2. Follow-up of every case discovered in x-ray examinations, in order to insure clinical diagnosis and proper treatment. This would include supervision by physicians in private offices or clinics, assisted by public health

nurses; sanatorium care; protective supervision after discharge, and rehabilitation where indicated.

3. Periodic examination, including chest x-ray, of persons with inactive disease.

4. Prompt treatment for active cases which can make a good recovery.

5. Strict isolation of open cases to prevent further spread of the disease.

6. Intensified health education activities among the general population, patients and their families. This can well be done by local tuberculosis associations.

7. Expanded research in tuberculosis and public health methods.

8. Financial aid to the tuberculosis breadwinner.

Only if this nation recognizes tuberculosis in all its aspects as of national public concern, as cause of suffering and death, and treats it medically, socially and economically, shall we be enabled to conquer it. If it be so recognized, the outlook for control is encouraging and with hard work and joint effort, eradication is possible within our generation.

Health For Victory

By

FRANK W. WEBSTER
Executive Secretary

North Carolina Tuberculosis Association
Raleigh, North Carolina

TUBERCULOSIS is sheer criminal waste.

It is an unnecessary disease, for it is preventable and curable. Yet it ravages our people and costs us 57,000 lives a year—one every nine minutes. Negligence and ignorance about tuberculosis contribute to death's high score. A conservative statistical estimate has set the number of active cases in this country at 500,000 and more than half of these are unknown, often entirely unsuspected. Last year 1,459 persons died in North Carolina from tuberculosis; 616 white and 843 colored. There are around 14,500 cases of active tuberculosis in the state. The death rate for 1943 reached a new low of 39.7 compared to 45.6

in 1942 and for the first time the death rate in North Carolina was lower than that of the nation which was 41.9 for 1943.

While the tuberculosis death rate for the general population has been cut 75% since the NTA was organized in 1904, the disease still kills more persons between the ages of 15 and 45 than any other disease. We cannot let up in our work while so many men and women in the prime of life are threatened. Tuberculosis took approximately 145,000 lives in the first 31 months after Pearl Harbor. Deaths among the Armed Forces for this same period, according to a recent estimate, were 57,000. Over the centuries tuberculosis has killed more people than has war.

The story of a forty-year old fight to wipe out tuberculosis in American communities starts with the founding of the NTA in 1904 in Atlantic City, N. J. There are a few local voluntary tuberculosis organizations which antedate the National Association, but since the mobilization of health workers in a nationwide attack on the disease, the movement has grown until there are now more than 2500 state, county, and municipal groups which have been formed to join in this great battle against one of the deadliest enemies of mankind.

The North Carolina Tuberculosis Association was founded in 1912 and has developed a program to meet the specific needs of the state. There are now 28 county tuberculosis associations, 2 city associations and 150 local tuberculosis committees affiliated with the state association.

The entire support of the programs conducted by the state and its affiliated associations and committees comes from the annual Christmas Seal Sale. Everyone can participate against the White Plague by using Christmas Seals. Each Seal is a brick in a mighty wall to guard us against an attack by those small germs which can be as destructive as an attack by an enemy army. The first record of a Christmas Seal Sale in North Carolina in 1912 netted \$3,960.53. The 1943 Christmas Seal Sale amounted to \$198,110.13. Ninety-five per cent of the 1943 sale was kept within North Carolina to finance the tuberculosis control program, the other 5% was sent to the National, which sponsors medical research and coordinates the programs of state associations. Seventy-five per cent of the amount raised was retained by local groups for programs in their own communities and 20% was given to the State Association for its work. The division of the 1943 sale of \$198,110 was as follows: local communities \$148,583; state \$39,622; and National \$9,905.

The prospects for the 1944 Christmas Seal Sale are bright. The National goal has been set at \$13,500,000 an increase of \$2,500,000 over the 1943 goal. The goal for North Carolina has been set at \$215,000 an increase of

\$17,000 over the 1943 sale of \$198,000.

Tuberculosis associations can lead the fight but they cannot win the battle alone. Christmas Seal dollars are just a drop in the bucket of the sums of money needed to pay for a staggering tuberculosis bill. The costs of tuberculosis are often hidden. Authorities can only estimate the cost of diagnosis, treatment, and losses in terms of economic waste. Estimates of the cost of an average case vary from \$5,000 to \$10,000. The disease strikes the hardest among lower income groups. Hence, only a small percentage of patients can pay for care. The rest become the responsibility of the community.

To eliminate the costliness of tuberculosis we must make an additional effort to prevent tuberculosis by providing extra means of case-finding and care. No matter how great the immediate cost of x-raying every citizen might be, the dividends in time, in hard, cold cash and life would far outweigh the initial investment. Screening out cases of tuberculosis in industry and other groups is a step in the right direction.

By supporting and working with the tuberculosis association, we can assume our traditional heritage of responsibility and leadership. In promoting the Seal Sale, mass x-ray surveys and health education of the public at large, we can enjoy a deep sense of gratification in having shared in the privilege of building a better world. By having ourselves and our families checked by periodic chest x-rays, we can protect ourselves and set an example for the community to follow, and example which will help mould public opinion. Undoubtedly, the secret of the success of the tuberculosis control program is that it is the program of the people, supported by the people. With everyone united behind the movement, we are bound to win the battle against tuberculosis.

The expenditures of the North Carolina Tuberculosis Association for the last fiscal year were as follows:

Health Education: Early diagnosis campaign; annual and district conferences; general literature and posters; bulletins; motion picture films; News Letter; essay contests; scholar-

ships; stenographic and clerical service; travel; salaries\$8,114.67

Administration: General supervision of program; rent; equipment; supplies; telephone and telegraph; postage; annual and other reports; insurance; stenographic and clerical service; travel; salaries\$3,063.11

Seal Sale: Field service; arranging and holding regional and county conferences; preparing and distributing publicity and educational ma-

terials, handling supplies; free seal sale supplies to locals; shipping; radio; stenographic and clerical service; travel; salaries\$10,810.22

Field and Organization: Visits to local committees and associations to advise and assist on programs and organization problems; Christmas Seal Sale; organize and reorganize local associations, provide speakers, stenographic and clerical service, travel and salaries\$4,777.51

A Christmas Tradition

By

L. L. BING MILLER

Assistant Executive Secretary

North Carolina Tuberculosis Association
Raleigh, North Carolina

WE are on the threshold of the Christmas season, when we turn our minds from the more selfish and personal channels and give thought to the interest and welfare of mankind in general. It is the season in which we have opportunity to express that interest by joining in promoting community health and community welfare. It is the season in which we are invited to share in the fight against tuberculosis by buying Christmas Seals.

This is the fortieth year in which the people of the world have shared in this voluntary, democratic method of helping to eradicate a terrible disease. It was forty years ago this Christmas season that a postal clerk in Denmark saw the realization of one of his dreams. For a long time his mind had been troubled by the fact that so many of the poor children of his country were suffering from tuberculosis. Day after day he thought about this until one day, in the midst of the Christmas rush of mail, it occurred to him that stamps could be useful in alleviating the suffering of these sick children. He obtained permission for the sale of a stamp which had no value in conveying a letter but was of infinite value in saving lives. Thus, in the winter of 1904, the first Christmas Seals were put on sale in Denmark

and the funds raised were used to aid tuberculous children.

It is doubtful if Einar Holboell, the Danish postal clerk, knew that earlier in the year an organization had been formed in the United States called the National Tuberculosis Association whose purpose was fundamentally the same as Holboell's—to combat the White Plague. This organization was formed by a small group of physicians and laymen who had become appalled by the harvest of human life taken by tuberculosis. They proposed to fight this disease by studying its nature, discovering its causes and planning an educational campaign to prevent its spread. They recognized that tuberculosis is a communicable disease caused by a definite germ. They recognized, too, that the most effective way to prevent the spread of this germ is by having the spreaders go to a sanatorium for treatment. These pioneers appreciated the power of knowledge and looked hopefully to the day when all people would no longer think of tuberculosis as a dreadful stigma, but as an unavoidable accident and a curable disease.

In 1907, Miss Emily Bissell, who worked for the Red Cross in Wilmington, Delaware, was asked to raise \$300 to finance a little open

air hospital shack for tuberculous patients. She adopted the Danish Postal clerk's idea of having Christmas Seals. The sale went well and instead of raising \$300 she raised \$3,000. The next year, 1908, the Seal Sale became nationwide and every year since that time, more and more people have been buying seals and enrolling in this Crusade for health.

The Red Cross sponsored the Seal Sale through 1919 using as its emblem the Red Cross, symbol of that great organization. In 1919, however, a double-barred cross a modified version of the ancient Lorraine Cross, symbol of the First Crusade, was adopted and in 1920 this organization turned over the Christmas Seal Sale to the National Tuberculosis Association which issues yearly contracts to the state associations for the sale of this seal. The state associations, in turn, issue contracts to the local associations.

The work of all the tuberculosis associations in the country is financed solely by the revenue from the sale of the Christmas Seals. Seventy-five cents out of every Seal Sale dollar stays in the local communities while twenty cents go

for state-wide work and five cents to nationwide work.

The sight of the bright little seals bearing the double-barred cross has become almost as familiar to Americans as the picture of Santa Claus. Christmas, in more ways than one, would not be Christmas without them. They have been the means of saving thousands of lives already endangered by the dread disease and of preventing its spread to countless others. Since the National Tuberculosis Association was organized in 1904, the death rate from tuberculosis has been cut 75%. Yet it still takes a life every 9 minutes and kills more Americans between the ages of 15 and 45 than any other disease. In North Carolina alone in 1943 tuberculosis killed more than 1450 people while about 13,000 were sick with the disease.

The fight is by no means ended. It must go on as relentlessly as the fight against our enemies overseas. Everyone should join in observing the fortieth anniversary of the first Christmas Seals by buying the seals that save lives.

Things You Should Know About Bacteria

III. Insects and Rodents and How They Carry Bacteria

By

MORRIS OSTROLENK, *Bacteriologist*
Division of Sanitary Engineering
North Carolina State Board of Health
Raleigh, North Carolina

(This is the third of a series of five articles dealing with bacteria and their relation to the proper handling of food.)

INTRODUCTION

FROM two previous articles, "Know Your Enemy" and "The Catching Diseases", we learned many interesting and important facts. Probably the most important things of all were that DISEASES ARE CAUSED BY GERMS and that the SPREAD OF DISEASES IS DUE TO CARELESSNESS. These are

both very important facts, because without this knowledge and understanding we cannot hope to build our defenses. Without this knowledge and understanding we develop all kinds of misconceptions and superstitions. Even more damaging is the fact that without a knowledge and understanding of GERMS and CATCHING DISEASES we come to look

upon these things as something shrouded in mystery—something that only a few doctors and nurses know anything at all about. The sooner, however, that we come to realize that certain germs produce diseases and that we spread these germs through our own carelessness, the sooner will we begin to enjoy real good health. Then, and only then, will we appreciate the meaning of the phrase **HEALTH IS WEALTH**. In the war we wage on diseases, our targets are **GERMS**, our ammunition **PREVENTION**.

There are some ways in which disease germs get into our bodies, through the things we eat and drink, that have not yet been discussed. Let us now consider how certain insects and rodents, such as flies and rats, are **UNEQUALED** by any other pests in their ability to spread disease germs.

FLIES ARE MORE DEADLY THAN BULLETS

During the Spanish-American War, more soldiers were killed by diseases spread by flies

the **DISEASE-PRODUCING GERMS**. In 45 MINUTES these flies deposited 560,000 germs, of which 1,000 were the **DISEASE-PRODUCING GERMS**. These same flies deposited on this food 1,500,000 germs in 4 HOURS and more than 3,500,000 germs in 5 HOURS, of which more than 100,000 were **DISEASE-PRODUCING GERMS**.

Because of the hairy structure of house flies and because they live and breed in every kind of filth, these insects can carry many kinds of harmful bacteria on the outsides of their bodies. Something that may not be so widely known, however, is the fact that flies also carry harmful bacteria **WITHIN** their bodies, and they deposit these disease-producing bacteria upon our food by defecation (intestinal wastes) and regurgitation (vomiting).

These experiments were carried a step further to determine just how long these flies, which had been infected with the disease germs, could carry these germs inside of their bodies. It was found that the disease germs

TABLE I

Time Sterile Food Exposed to Flies	Number of Germs Deposited by Flies	No. of DISEASE GERMS Deposited by Flies
15 minutes	900	10
45 minutes	560,000	1,000
4 hours	1,500,000	100,000
5 hours	3,500,000	100,000

(Taken from "Food Research", 1942, Vol. 7, No. 3, pages 192-200.)

than were killed by enemy bullets. It has been estimated that in three epidemics of typhoid fever and dysentery from 1890 to 1900 more than 20,000 people became infected in each of the outbreaks. Because flies were thought to be important as spreaders of many types of disease germs, certain experiments were conducted to establish just how responsible they can be. Before these experiments were started, the flies were infected with a disease germ. About eight flies were allowed to come in contact with some sterile food (food which is absolutely free of all germs). It was found that these flies deposited on this food 900 germs in 15 MINUTES, 10 of which were

lived in the bodies of the flies for more than 20 DAYS and that during that entire time they were infecting everything with which they came in contact. These were the results of some experiments with the common house fly, which is said to be the most universal (world-wide) creature in existence. As a final check on the results of these experiments, several hundred flies were trapped in and around food-producing plants. Examination of these flies showed that they contained as many as 750 MILLION GERMS on and in each fly. These experiments are discussed in detail in the May 1942 issue of the American Journal of Public Health.

DANGER LURKS IN EVERY FLY. PREVENTION OF FOOD INFECTION BY FLIES REQUIRES:

1. WELL SCREENED DOORS AND WINDOWS
2. PREVENTION OF FLY BREEDING BY PROPER STORAGE OF GARBAGE AND REFUSE
3. PROTECTION OF FOODS BY PROPER STORAGE OR COVERS.

The story of cockroaches, ants, and many other insects whose habits are equally as filthy as those of the fly, is just about the same. They frequent toilets, garbage, manure, and other places of disgust and then seek refuge in our restaurants. **WE CAN KEEP THEM DOWN AND OUT.**

RATS ARE JUST NO GOOD ON EARTH

Although much evidence points to flies, cockroaches, and ants as pests which menace our health and welfare, it should be remembered that flies did at one time serve a useful function in medicine (the Baer maggot treatment for osteomyelitis). **NO SUCH CLAIMS CAN BE MADE FOR RATS.** These unwelcome creatures, destroyers of life and property, constitute a major health problem. Considerable emphasis has ably been placed on rat control measures by E. L. Hinton in his article in the April 1944 issue of *The Health Bulletin*. For reasons which are self-evident in his article, rat proofing must be left to those who are experts in this field of endeavor. Each of us can, however, materially reduce the rat population by eliminating places where

rats could live and breed and by protecting garbage and refuse so that rats cannot feed. We can also protect our health by safeguarding our food supplies, through proper storage and handling, from rats and the pollution they carry.

Now let us inquire into the role rats play in the spread of diseases. Not the least important of all types of germs which rats carry are those that poison food. It has been found that rats carry a disease germ in their intestinal tract which is not particularly harmful to the rat but which causes disease in man. These disease germs are passed out of the bodies of rats in their excreta (feces). Through our carelessness and neglect, this body waste gets into our food and we become ill. Studies have been made of droppings from naturally infected rats and it was found that the disease germs lived for at least 148 days. More detailed information on this subject can be found in the April 1941 edition of the *American Journal of Public Health*.

Rats are often infected with a germ which produces jaundice. These germs are passed out of their bodies through rat urine. Germs of typhus fever, bubonic plague, and rat bite fever are but a few more of the many diseases for which rats are largely responsible. Probably no other animal in the world has as little justification for its existence as does the rat.

**IF WE DID NOT HARBOR THEM
IF WE DID NOT FEED THEM
WE WOULDN'T HAVE THEM.
KEEP 'EM OUT**

Accident Facts

THE National Safety Council has just brought out its 1944 edition of "Accident Facts," which presents a comprehensive report on accidents of all types. The booklet states that the 1943 accidental death toll was 97,500, an increase of about 2 per cent over 1942. Accidental injuries in 1943 totaled about 10,100,000, about 350,000 of which resulted in some permanent disability ranging from a

finger amputation to permanent crippling. Accident costs totaled approximately \$4,900,000,000, including wage loss, medical expense, overhead costs of insurance, property damage in motor vehicle accidents and fires, and so-called indirect costs of occupational accidents. Motor vehicle accidents accounted for 23,400, a 17 per cent decrease from 1942. Public nonmotor vehicle accidental deaths of civilians

totaled 17,000, a 6 per cent increase over the previous year. There were 32,500 civilian home accident fatalities in 1943, an increase of 7 per cent over 1942. Deaths of civilians in occupational accidents totaled 18,000, or 3 per cent less than in 1942. Accidental deaths of military personnel in the United States accounted for 11,500 deaths, a 69 per cent in-

crease over 1942. The most important single type of accidental death in 1943 was falls, replacing motor vehicle accidents, which had for twenty years resulted in the largest annual death total. Falls accounted for 27,400 deaths, giving a rate per hundred thousand of 20.3, an increase of 7 per cent over 1942. The total increase since 1933 amounted to 17 per cent.

Cold Mornings and the Closed Garage

THE problem of garage ventilation should be uppermost in our minds at this season of the year. While summer weather prevailed the automobile engine instantly responded to the starter and we were out of the garage in no time at all. When cold weather comes, however, the picture changes. Just as the person who is less likely to get up on the first signal of the alarm clock on cold mornings, the automobile engine is slower to respond to our touch when colder weather prevails. This delay in starting can, if continued, place us in a hazardous position unless every precaution has been taken to keep our garage doors open-
ed wide.

Carbon Monoxide a Quick Killer

The exhaust gases of the automobile engine contain that deadly gas carbon monoxide. This gas is colorless and odorless so it gives no warning of impending danger. An automobile engine produces roughly one cubic foot of carbon monoxide gas per minute per 20 horsepower. This is sufficient to render the atmosphere of a single car garage deadly within five minutes if the engine is running while the garage is closed. In a small closed garage, so often found in residential areas, an automobile engine generating this amount of carbon monoxide each minute will in a very short time produce such a dangerous concentration of the gas as to render a person helpless.

The action of carbon monoxide is insidious. It has a stronger affinity for hemoglobin than has oxygen so the oxygen is quickly displaced leaving the hemoglobin without power to carry

needed oxygen to the tissues. This change comes about without being apparent. At first a slight headache or muscular weakness may be noticeable, though the victim may not feel the effect of this until he starts to move or exercise, then he becomes helpless and falls. He soon becomes unconscious and death may follow rapidly unless he is removed quickly to the open air for first aid resuscitation measures. These should include the use of an inhalator from the nearest available station.

Let Fresh Air Into the Car

Cold weather warnings should also be heeded in the case of closed car windows. No car with engine going should be entirely closed no matter how low the temperature outside.

Carbon monoxide may be present from the exhaust gases which have seeped through the car because of some defect in the exhaust system. With proper ventilation in the car the minute amount present would cause no ill effects, but with windows closed an accumulated amount may be enough to jeopardize the health or even life of the occupants. Over a long run in a closed or partially ventilated car an accumulation of minute quantities of carbon monoxide may result in headache and dizziness which may render the driver less able to avoid accidents if not actually succumb to the effects of this deadly gas.

So VENTILATION is a necessity when driving in cold weather, or in starting an engine in a garage. This warning should be heeded by all.

Deaths From Tuberculosis of the Respiratory System By County and Race: 1943

Total Deaths (Tuberculosis, All Forms), 1,459

COUNTY	PLACE OF DEATH			PLACE OF RESIDENCE			COUNTY	PLACE OF DEATH			PLACE OF RESIDENCE		
	Total	White	Colored	Total	White	Colored		Total	White	Colored	Total	White	Colored
Total, State	*1,343	571	762	*1,192	462	720	Johnston	11	5	6	16	5	11
Alamance	13	7	6	18	9	9	Jones	4	1	3	6	2	4
Alexander	---	---	---	1	---	1	Lee	1	---	1	2	---	2
Alleghany	1	1	---	1	1	---	Lenoir	21	3	18	34	7	27
Anson	9	5	4	13	5	8	Lincoln	---	---	---	---	---	---
Ashe	3	3	---	4	4	---	McDowell	4	4	---	5	5	---
Avery	4	3	1	4	3	1	Macon	6	4	2	7	4	3
Beaufort	6	1	5	9	1	8	Madison	3	3	---	4	4	---
Bertie	8	2	6	11	3	8	Martin	9	1	8	12	2	10
Bladen	2	1	1	*6	2	3	Mecklenburg	40	16	24	40	16	24
Brunswick	3	---	3	3	---	3	Mitchell	1	1	---	2	2	---
Buncombe	259	189	70	64	43	21	Montgomery	1	1	---	1	1	---
Burke	5	4	1	4	2	2	Moore	6	3	3	10	4	6
Cabarrus	3	3	---	6	4	2	Nash	17	3	14	27	7	20
Caldwell	4	4	---	6	6	---	New Hanover	15	5	10	16	5	11
Camden	3	2	1	3	2	1	Northampton	12	1	11	15	2	13
Carteret	7	4	3	14	8	6	Onslow	9	2	7	13	5	8
Caswell	7	---	7	9	3	6	Orange	6	3	3	8	4	4
Catawba	4	3	1	8	5	3	Pamlico	---	---	---	---	---	---
Chatham	1	---	1	2	---	2	Pasquotank	13	3	10	21	5	16
Cherokee	3	2	1	4	3	1	Pender	4	1	3	7	1	6
Chowan	6	5	1	7	5	2	Perquimans	4	---	4	5	1	4
Clay	---	---	---	---	---	---	Person	4	4	---	10	5	5
Cleveland	7	3	4	9	3	6	Pitt	16	2	14	34	6	28
Columbus	6	3	3	12	5	7	Polk	4	4	---	4	4	---
Craven	14	---	14	20	2	18	Randolph	5	4	1	8	5	3
Cumberland	29	12	17	*25	7	17	Richmond	4	2	2	8	3	5
Currituck	3	1	2	5	3	2	Robeson	*12	3	6	*21	6	11
Dare	3	3	---	4	4	---	Rockingham	5	3	2	8	4	4
Davidson	4	2	2	6	4	2	Rowan	12	5	7	16	5	11
Davie	---	---	---	1	---	1	Rutherford	9	8	1	12	10	2
Duplin	4	2	2	11	4	7	Sampson	14	4	10	21	5	16
Durham	42	13	29	43	7	36	Scotland	*4	1	2	7	2	5
Edgecombe	21	3	18	28	4	24	Stanly	5	4	1	6	5	1
Forsyth	56	18	38	57	16	41	Stokes	4	2	2	5	4	1
Franklin	1	---	1	4	1	3	Surry	8	8	---	12	12	---
Gaston	11	7	4	19	9	10	Swain	*5	1	---	*5	1	---
Gates	6	2	4	7	2	5	Transylvania	---	---	---	---	---	---
Graham	---	---	---	1	1	---	Tyrrell	2	1	1	3	1	2
Granville	7	2	5	13	5	8	Union	8	4	4	8	5	3
Greene	5	1	4	7	1	6	Vance	8	3	5	11	4	7
Guilford	55	19	36	57	22	35	Wake	42	20	22	37	7	30
Halifax	31	9	22	40	12	28	Warren	6	1	5	9	4	5
Harnett	4	1	3	10	6	4	Washington	1	---	1	1	---	1
Haywood	2	2	---	2	2	---	Watauga	---	---	---	---	---	---
Henderson	5	2	3	4	2	2	Wayne	62	6	56	26	9	17
Hertford	6	1	5	8	2	6	Wilkes	4	4	---	6	6	---
Hoke	*142	37	103	7	3	4	Wilson	76	19	57	41	12	29
Hyde	4	3	1	5	4	1	Yadkin	2	2	---	2	2	---
Iredell	9	5	4	12	7	5	Yancey	5	5	---	5	5	---
Jackson	1	1	---	1	1	---							

*Indian deaths (place of death)

Hoke 2
Robeson 3
Scotland 1
Swain 4

*Indian deaths (place of residence)

Bladen 1
Cumberland 1
Robeson 4
Swain 4



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The Expectant Mother.	Diet List: 9 to 12 months; 12 to 15 months; 15 to 24 months; 2 to 3 years; 3 to 6 years.
Breast Feeding.	Instruction for North Carolina Midwives.
Infant Care. The Prevention of Infantile Diarrhea.	
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CARL V. REYNOLDS, M.D., State Health Officer

JOHN H. HAMILTON, M.D., Acting Editor

Public Health Workers in North Carolina Look to the Future*

DR. WILLIAM P. RICHARDSON, President
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WHAT I shall say this afternoon scarcely deserves the term "Presidential Address." "Presidential Remarks" would perhaps be more fitting. I want simply to take this occasion to say to you a few words of commendation and exhortation which I feel deserve to be said.

First, I would pay tribute to you who are carrying on the public health program of North Carolina in such splendid fashion in the face of so many difficulties and discouragements. The records of continued reduction of preventable illness and death gives more eloquent testimony than any words of mine could to the fact that despite the tremendous problems created in our State by military establishments and war industries, despite increased loss of trained personnel, and despite all the difficulties and dislocations of war time, you are carrying on in keeping with the great traditions of our profession.

Many of you have resisted an impelling urge to join our country's military forces—and surely this is an urge which all of us have felt and which only a strong sense of the high importance of our job of public health to the country's present effort and future progress has enabled us to resist. Others have stayed in or returned to public health at considerable personal disadvantage, choosing this means of making your contribution to the nation's all-out effort.

Our work does not have the dramatic quality

of military service on the field of battle. There are no medals or presidential citations, and little public acclaim. However, it is my sincere conviction that you are serving our country just as patriotically, and often more effectively, than if you were in the armed services. You are truly soldiers in our never ending war against ill health and disease, a war more significant at this grave hour than at any time in our history. I salute your patriotism and loyalty!

You will be interested in some of the facts regarding our State's health record during these war years.

In 1940, our maternal death rate was 5.3 per 1000 live births. In 1943 it had fallen to 3.3. The infant death rate in 1940 was 59.1 per 1000 live births; in 1943, 46.6. The death rate from tuberculosis in 1940 was 48.8; in 1943, 39.1. From diphtheria in 1940, 3; in 1943, 1.5. From typhoid fever in 1940, 1.1; in 1943, 0.5.

Figures such as these, taken by themselves may sometimes be misleading, but they definitely show that the downward trend in preventable diseases, started before the war, has been continuing, and it gives us encouragement that we are holding the home front.

*Presidential address read before the North Carolina Public Health Association, October 31, 1944.

In the second place, I would draw your attention to the necessity of attaining in our public health practices and techniques the highest standards of scientific and professional excellence. We cannot expect to maintain and enhance the prestige of our profession, or to go forward in the broader, stronger public health program which beckons in the post war period if we are satisfied with slipshod or medically unsound practices; or continue to spend valuable time in procedures which have proved ineffective or have been rendered obsolete by the march of scientific progress.

Quarantine procedures, immunization practices, criteria of diagnosis and schemes of treatment of venereal diseases, standards of maternal and infant supervision, and the X-ray diagnosis of tuberculosis are some of the medical procedures which we must keep abreast of the best medical practice. In the examination of school children we must select carefully the children to be examined, define closely just what the examination covers, and use the most satisfactory standards available for evaluating physical status.

In our nursing program too, let us select our cases with care, visualize clearly what we want to accomplish by our supervision, and use the best techniques, and the best educational methods we can.

In the field of sanitation, let us strive constantly to keep our practices in line with the scientific knowledge which forms the basis of our work. We must ask ourselves whether we are holding on to these practices because they are traditional, or whether they have a sound scientific foundation, and must seek to eliminate those things which are ineffective, introducing the new techniques which scientific developments are making available to us.

You are doubtless asking yourselves how I can emphasize quality and excellence when your work is heavier than ever before and personnel is so inadequate. My answer is that this very situation makes all the more urgent the necessity for excellence. It makes all the more urgent the elimination of those practices which cannot stand close scrutiny in the light of the results achieved; the establishment of an

order of priority for our activities, and concentration on only those with highest priority rating. We may have to limit drastically the scope of some of our activities, but let us limit it, and do a good job in the things we do, a job that will stand the test of professional excellence.

Finally, I would speak briefly on the relationship of those of us in public health to current discussion and developments in the field of medical care. Often we have felt this was a problem for those in private practice, and have hesitated to express ourselves. Yet developments are coming apace and public health has much to offer in the concept and philosophy that should animate such a program.

Curative medical practice is preoccupied with the immediate clinical problem of the individual case. Public health, on the other hand, while concerned with the immediate problem, sees it as one facet of a broader picture, sees the patient and his illness in relation to his family and community.

The control of syphilis has resolved itself into a program of locating and treating patients with clinical disease but we could never have made the start we have made toward bringing it under control had we been preoccupied only with this clinical aspect. It is the habit of seeing the syphilis patient as one link in a great chain of infection, and our program of following these links step by step through family and community and our habit of considering syphilis itself as one aspect of a broader community problem that is the measure of our success.

This same viewpoint, coupled with the educational approach which is so large a part of the public health method, can contribute tremendously to more effective handling of many fields of illness now generally considered primarily as individual clinical problems, and it will be a tragedy if false modesty prevents our taking an active part in the discussion and making of plans which is going on. Specifically, in addition to taking an active interest in discussions on a national basis, it behooves us to inform ourselves fully regarding the pro-

gram of medical education and medical care which is to be presented to the next legislature and which we will hear more about this evening, and to use our influence actively in stimulating support for its passage.

It may well be that health departments, which are the only medically directed agencies in our government experienced in administering a community program, will be called on to assume some responsibility in the administration of programs which may be developed. We will be well advised if we keep ourselves informed regarding medical care plans. We certainly do not seek any added responsibility but the medical care of the future is going

to be more and more closely related to public health and we cannot let the administration of any governmental ventures in this field be placed in incompetent, non-medical hands.

In conclusion, it is my firm conviction that we can look forward to widening public health horizons, bringing increasingly adequate support for our work, an increasing appreciation and use of preventive medical practices, and the application of the public health method to new fields. The advances of recent years are but a beginning. May we be prepared to play a worthy part in the advances that are to come!

The Whooping Cough Problem

PART I

By

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INTRODUCTION

THE number of favorable reports on the value of whooping cough vaccines in the control of that disease has steadily increased in the last few years.

Public health workers, pediatricians, and others, consequently, are discussing more and more widely the use of this vaccine on a large scale with the aim of reducing to a negligible point the widespread illness and destruction of life for which this disease is responsible.

The problem of whooping cough, with particular emphasis on the situation in North Carolina, will be discussed briefly in this and a subsequent article.

Summary of Epidemiology

Whooping cough, or pertussis, is an acute infection of the respiratory tract caused by the micro-organism *Hemophilus pertussis*, and is characterized by inflammatory symptoms of the respiratory tract and by spasmodic coughing. The paroxysms of coughing are frequently followed by an inspiratory stridor or "whoop";

however, in the first week or two of the disease the cough is usually not characteristic and it is during this period that the organisms are most readily found in the upper respiratory tract. These latter two facts constitute a major difficulty in attempting to control the disease by isolation and quarantine alone.

Whooping cough is found throughout the world. It occurs at all seasons, with considerable variation in the months of maximum incidence in a given locality from year to year.

This disease is one of the most important causes of death in the United States in small children, and at present outranks all other infectious diseases except pneumonia. The majority of deaths occur during the first year of life, although the majority of cases occur during the slightly older age groups.

The case fatality rate for all ages combined is less than 1 per cent but may be as high as 25 per cent in infants. The disease is considerably more severe during the cold months,

due to respiratory complications, and frequently in the hot months it is complicated by enteritis.

Cases of the disease in all instances originate after exposure to other cases. No carriers are known to exist. It is probable that much spread is brought about by moderate or severe cases before the diagnosis is made. Mild cases are frequently not diagnosed and are thereby free to spread the infection for longer periods.

Studies have shown that the organisms are found in the respiratory passages of patients with increasing difficulty as the disease progresses. Approximately 80 per cent of cultures are positive the first week, 70 per cent the second, 50 per cent the third, and 35 per cent the fourth.

Droplet infection probably constitutes the most common mode of spread, with indirect contact being of negligible importance.

The incubation period is variously reported as being inconstant, such as from 6 to 20 days, or as being fairly constant, such as from 14 to 16 days.

Whooping cough differs decidedly in the matter of susceptibility from several other childhood diseases. While in the case of measles, diphtheria, and probably poliomyelitis, the passive immunity inherited from the mother protects the infant for the first few months of life, such immunity appears to be practically absent in the case of whooping cough. Neither is immunity acquired with age to an appreciable extent. There are no racial differences in the matter of susceptibility.

The Disease in North Carolina During the Past Ten Years

The morbidity and mortality rates of the disease in this state have followed the expected patterns closely during the past ten years.

The seasonal increases have varied widely, summer and winter outbreaks both having occurred with about equal frequency. At times, second outbreaks have taken place during the same year.

The morbidity rate has also varied, the extremes being 45.3 and 432.5 cases per 100,000 population. The rates for each of the ten years are shown in Table I.

TABLE I
WHOOPIING COUGH MORBIDITY
RATES

1934-1943

Year	Cases Per 100,000 Population
1934	432.5
1935	317.8
1936	45.3
1937	222.9
1938	424.0
1939	263.8
1940	154.0
1941	306.2
1942	155.5
1943	232.9

Study of the age incidence of the cases for this period shows that 9.5 per cent of the total occurred under one year of age, 83.1 per cent between the ages of one and nine years, and 7.4 per cent over nine years. This distribution is shown in Figure I.

Although the group of children under one year who have had whooping cough is comparatively small, this group has had 63.2 per cent of all deaths from the disease for the ten years, 1931-1940. The age distribution of the deaths is shown in Figure II.

A further study of whooping cough mortality in the age group under one year shows that of the total of 209 children in this age group who died as a result of this disease in the past three years, 115 or over half died by the end of their third month of life.

Comparison of Whooping Cough with other Communicable Diseases as a Cause of Morbidity and Mortality in this State

Of the 34 communicable diseases reportable at present in this state 18 are ordinarily responsible for practically all of the deaths caused by the group. These 18 are:

Diphtheria	Meningitis
Dysentery	Paratyphoid Fever
Endemic Typhus	Poliomyelitis
Fever	Rocky Mountain
Influenza	Spotted Fever
Malaria	Scarlet Fever
Measles	Septic Sore Throat

Smallpox	Typhoid Fever
Tuberculosis	Undulant Fever
Tularemia	Whooping Cough

Of the 16 remaining reportable diseases five have not been reported in the past 10 years. These are:

Cholera	European Typhus
Plague	Fever
Psittacosis	Yellow Fever

Anthrax has been reported only three times in this period. Chickenpox, German measles, and Vincent's infection are secondary causes of disability and death.

The other seven reportable diseases are the venereal diseases, and pellagra, rabies, and trachoma. The venereal diseases are of major importance as a cause of morbidity and serious disability, but they are also of secondary importance as a cause of death. Pellagra is rapidly becoming a minor problem. Trachoma is of low incidence and is a cause of morbidity rather than mortality. Rabies deaths are now rare.

Pneumonia, which is not reportable in this state, was the leading cause of death from the infectious diseases in 1943; however, pneumonia control is not universally accepted as part of public health communicable disease control programs.

The 18 reportable diseases of major importance as a cause of death are listed in Table II in the order of their rank, based on the mortality rates for 1943. The morbidity rates for the same year are also shown in this table.

It will be noted from this table that only tuberculosis and influenza were more important than whooping cough as a cause of death from the reportable diseases in 1943. As a cause of morbidity only syphilis with a rate of 392.4 and gonorrhea with a rate of 301.6 were above whooping cough in the entire group of 34 reportable diseases. The six diseases that immediately follow whooping cough on the list in Table II are diphtheria, meningitis, tularemia, malaria, measles, and typhoid fever.

Congress has recently provided funds to expand tuberculosis control work. The Army

TABLE II
MORTALITY AND MORBIDITY RATES
FOR 18 SELECTED REPORTABLE DISEASES—1943

Rank	Disease	Morbidity Rate		Mortality Rate	
			(cases per 100,000 pop.)		(deaths per 100,000 pop.)
1	Tuberculosis	44.1		36.0	
2	Influenza	38.7	"	11.8	"
3	Whooping Cough	232.9	"	2.9	"
4	Diphtheria	22.1	"	1.5	"
5	Meningitis	13.2	"	1.4	"
6	Tularemia	0.4	"	0.8	"
7	Malaria	5.1	"	0.6	"
8	Measles	144.7	"	0.5	"
9	Typhoid Fever	3.0	"	0.46	"
10	Dysentery	3.6	"	0.4	"
11	Poliomyelitis	1.0	"	0.3	"
12	Rocky Mountain Spotted Fever	1.0	"	0.3	"
13	Septic Sore Throat	5.6	"	0.3	"
14	Endemic Typhus Fever	4.3	"	0.3	"
15	Scarlet Fever	79.1	"	0.2	"
16	Paratyphoid Fever	0.2	"	0.03	"
17	Smallpox	0.6	"	0.03	"
18	Undulant Fever	0.2	"	0.00	"

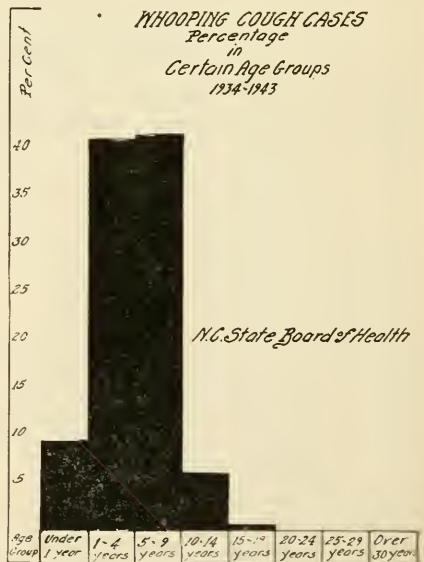
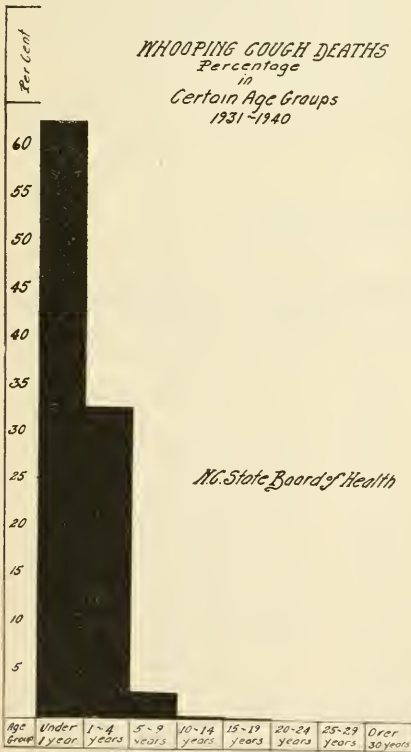
is now working with an influenza vaccine that may prove to be effective in the control of that disease. Diphtheria has rapidly declined since the development of diphtheria toxoid and its state-wide use. The more complete control of meningitis and tularemia is still awaiting further progress in the development of preventive measures. Malaria is steadily declining and an expansion of the eradication program in this state will soon be made. Measles control must, for the present, be dependent upon immune globulin, the use of which is rather complicated for universal administration. Typhoid fever has dropped from the high position it once held to a low point on the list, due to the widespread application

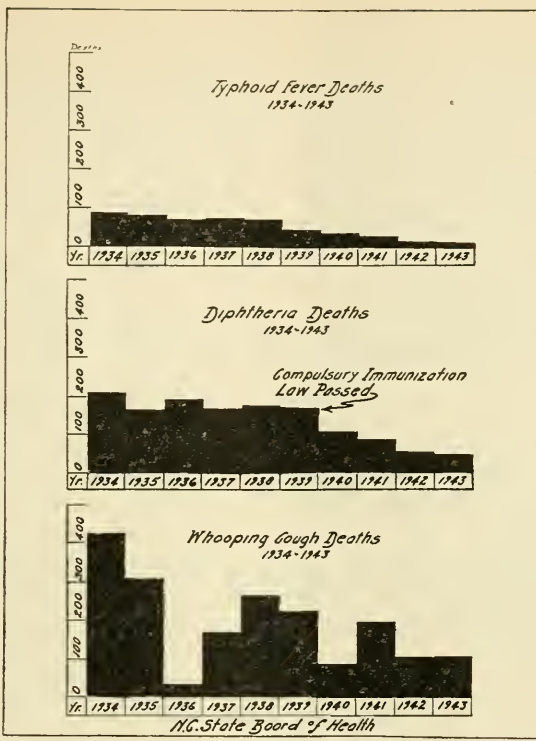
of sanitation and use of the vaccine. Only whooping cough remains in this group of nine diseases as having an effective means of control available but not yet applied on a mass scale.

Many physicians are administering pertussis vaccine at every opportunity and many health departments are providing the immunization to varying extents, but a great deal remains to be done in educating the public to take advantage of the benefits of its use, and in setting up a state-wide program.

The same decline should be brought about in this disease as has been obtained in diphtheria and typhoid. A comparison of the deaths for the past ten years from these three diseases is shown in Figure III.

A discussion of the immunology of whooping cough, the effectiveness of the vaccine, and its use in the control of the disease in North Carolina will be presented in the subsequent article.





Things You Should Know About Bacteria

IV. Prevention is the Essence of Cure
By
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Raleigh, North Carolina

(This is the fourth of a series of five articles dealing with bacteria and their relation to the proper handling of food.)

INTRODUCTION

In the first three articles "Know Your Enemy," "How Diseases are Spread," and "Insects and Rodents and How They Carry Bacteria," a great deal of emphasis was placed on the HOW and WHY of DISEASES. Our keynote was PREVENTION. Let us, therefore, now inquire into the WAYS and MEANS

of PREVENTION. To practice PREVENTION, we must know and understand that the METHODS of dishwashing and storage, the METHODS of food handling, the METHODS of general storage and the METHODS of personal conduct are what make or break the chain of events. It would be senseless to attempt to determine which is of most impor-

tance; the HOW and WHY of DISEASES or the WAYS and MEANS of PREVENTION. To do so would be like attempting to settle the question of which came first, the hen or the egg. Instead we will make a comparison of the how and why of diseases and the ways and means of prevention to determine the extent of inter-relationship which apparently exists. The following is a tabular comparison:

THE HOW AND WHY OF DISEASES	THE WAYS AND MEANS OF PREVENTION
I. Diseases are caused by germs— WHICH ARE EVERYWHERE.	I. Good dishwashing METHODS wash off most of the germs. To destroy what few germs that may remain on eating utensils requires either a heat or chemical treatment.
II. Germs are spread on dust particles and on water particles from coughs and sneezes.	II. Properly washed and treated eating utensils are free of germs. Proper METHODS of storage will protect them from further contamination.
III. Germs must have FOOD, WATER and proper HEAT to live and grow.	III. Proper refrigeration, proper food handling and proper protection of prepared foods are the METHODS by which we deprive germs of the things they must have to live and grow.
IV. Germs from the nose, mouth and throat, from the intestinal tract of man and animals and germs on our hands and arms MAY CAUSE DISEASE by transfer from one place to another.	IV. Good personal habits, clean wholesome conduct in food handling and proper handling of eating utensils are the METHODS by which we prevent the transfer of germs.

These are but a few of many comparisons which we could make. Each helps to fix in our minds that we are dealing with a long chain of events in trying to PREVENT the spread of diseases. On one end of the chain of events, are the links in which are the GERMS that cause DISEASES—on the other end of the chain, are the links of METHODS which make for PREVENTION.

Why Do It The Hard Way?

How SIMPLE or difficult, how POSSIBLE or impossible, how WORTHWHILE or worthless is it to practice PREVENTION? Let us examine one or two preventive measures to

seek an answer to these questions. The first item, on the list of disease PREVENTION, is dishwashing. We have said that GOOD DISHWASHING and a PROPER HEAT or CHEMICAL TREATMENT will help prevent the spread of diseases. WILL IT DO THAT and IF SO, HOW?

I. During rush periods in eating establishments, a wide assortment of dishes, soiled with

innumerable types of food (AND BACTERIA), accumulate on the drain board. The first step in good dishwashing is to sort and stack the dishes according to size and shape. This materially enhances all the remaining operations. This can simultaneously be done as the dishes are scraped of loose and adhering foods. Once scraped and stacked, the dishes are free of much food material (AND GERMS) which would otherwise be carried over in the succeeding dishwashing operations. This first step is undeniably SIMPLE, POSSIBLE and WORTHWHILE.

II. The remaining soil on the dishes is present in a varying degree of stick-to-itvness. Some foods, such as egg yolk, may have hardened onto the dishes while others, such as fats and oils, adhere loosely as a film over the surface. In either case, only vigorous scrubbing makes any appreciable impression. The SIMPLE, POSSIBLE and WORTHWHILE way to deal with such dishes is to allow them to soak until the soil is softened and soaked free from the dishes. There are many excellent commercial washing compounds which when dissolved in warm (not hot) water, aid in softening and soaking free soil. As a consequence, the next step in dishwashing becomes less difficult and more efficient.

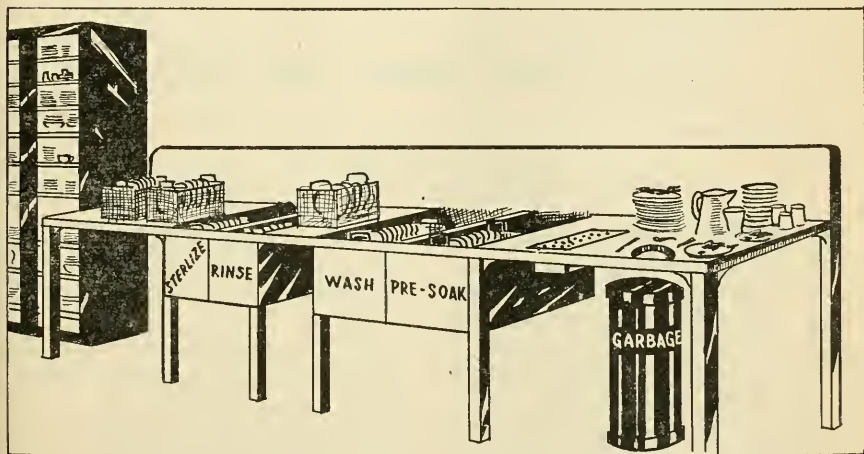
III. Properly scraped and soaked dishes are now ready to be put through either a mechanical dishwashing machine or washed by hand. In either case, the orderliness of the previous steps in the operation lightens the burden. It has been found that for every 100 germs present on soiled dishes at the start, approximately 90 are washed off IF THE DISHES HAVE BEEN PROPERLY SCRAPED, SOAKED AND WASHED.

IV. The foreign material remaining on dishes, following scraping, soaking and washing, are a few GERMS and a film of water containing the washing compound. Both can be removed by soaking the dishes in scalding hot water for at least two minutes. If not that, then the dishes should be rinsed free of the film of washing compound and then subjected to a chemical treatment (100 p.p.m. free available chlorine) for at least two minutes.

V. With an ample supply of available racks in which to stack dishes for each succeeding operation, the washed and treated dishes should be left to air drain and dry. The GERM FREE dishes are now ready to be properly stored to protect them from any invisible soil (GERMS).

In following out the five steps given above, we have fulfilled the requirements of at least two items of the WAYS and MEANS of disease PREVENTION. The job is SIMPLE because it is orderly—not confused. The job is POSSIBLE because it is SIMPLE. The job is WORTHWHILE because it affords PROTECTION.

THOROUGHLY WASH AND TREAT ALL EATING UTENSILS. THE PROTECTION IS CHEAP INSURANCE.



WASH EVERY PIECE CAREFULLY.

We Deprive and Thus Survive

Clean, sanitized (treated) eating utensils, properly stored for protection, are very essential in the scheme of disease prevention, BUT we must not stop there. Many more protective measures are necessary without which little or no benefits are derived. Unnecessary and careless handling of foods, contact of foods with dirty surfaces and exposure of foods to contamination from man and animal discharges **MUST BE AVOIDED**. To do otherwise would not be depriving the ever present germs of the essentials needed by them to sustain life. Highly perishable raw foods such as meats and vegetables and many prepared foods such as bottled milk, dairy products,

and cream filled pastries and pies should be preserved by refrigeration until needed—by us, **NOT GERMS**.

YOU PROTECT YOURSELF WHEN YOU PROTECT OTHERS PRACTICE PREVENTION

IGNORANCE and **CARELESSNESS** are as much responsible for our difficulties as are any one of a dozen disease bacteria. If we would learn and understand the things that must be known, we would have very little difficulty in maintaining a high degree of health and sanitation. **REMEMBER: IT'S NOT WHAT YOU DO — BUT HOW YOU DO IT THAT COUNTS.**



Use a fork—don't be a
butterfinger



Keep these cold



Keep these under
cover

War, Diphtheria and Polio

By

WILLIAM H. RICHARDSON

North Carolina State Board of Health
Raleigh, North Carolina

A QUARTER of a century ago this country had just emerged from World War I, during which 629 adult North Carolinians were killed in action, compared with 6,128 infants and small children in this State who have died of diphtheria including and since the year the armistice was signed.

The world has never discovered a formula for lasting peace. That feat remains to be accomplished by statesmen among whom there

still exists many differences of opinion—but even before the first World War, science had provided us with the means of preventing diphtheria.

And yet, look at the record here in North Carolina. More than six thousand diphtheria deaths in a quarter of a century composed for the most part of peacetime years.

We are demanding, as the first condition upon which we will agree to peace of any

kind, the **unconditional** surrender of Germany and Japan—and this is as it should be. Then, if history repeats itself, we will enter into treaties and agreements, designed to insure peace, and to promote economic, social and religious security among the nations.

Have we demanded in unmistakable terms the unconditional surrender of diphtheria, of which there had been 466 cases in North Carolina this year, up to November? We have **not**, else there should not have been a single case reported this year. You have all heard the expression, "You can't do business with Hitler." Neither can you do business with diphtheria, or any other communicable disease. Disease, like Hitlerism, must be made to surrender unconditionally, and even after that, you cannot make a peace treaty with it, for as long as a single germ of any communicable disease remains, it is a potential enemy which may regain its momentum at any time we become lax or indifferent. We must never be caught off guard.

So much for the logic of the situation. Let us now continue the consideration of certain facts with reference to diphtheria as it affects the people of North Carolina.

As was stated, previously, there have now been reported to the State Board of Health—or had been up to November—466 cases of diphtheria since January 1, despite the fact that this is a preventable disease, and that the immunization of infants and small children against it is a legal requirement. Of these 466 cases, 127 were reported in October alone, which leads to but one conclusion: That diphtheria, at this moment, is present in many sections of North Carolina. In fact, so far this year, cases have been reported from 79 counties. Let us have a look at those counties in which ten or more cases have been reported. Here they are: Beaufort County, 12; Burke, 10; Cabarrus, 16; Columbus, 14; Cumberland, 10; Davidson, 14; Duplin, 17; Gaston, 21; Granville, 10; Guilford, 15; Haywood, 16; Lenoir, 14; New Hanover, 23; Pitt, 26; Rutherford, 11; Wayne, 12. Many of these counties also have been heavily infected with poliomyelitis, this year. One case of polio can



MARTIN EDWARD LOCKARD

(12 months)

Grandson, Ross G. Martin

cause more excitement than a dozen cases of diphtheria, but let us make a comparison that may be disillusioning to many of you.

You already have been told that since the first World War, 6,128 North Carolina children have been **allowed**—and I say allowed, because it is a preventable disease—to die of diphtheria. Now, what would be your guess as to the number who died of polio during that period? Make a guess..... The total was just 543, less than **one-tenth** the number who died of diphtheria. Just think of it! More than **ten times** as many deaths in a quarter of a century from a disease known to be preventable and curable as from one we know neither the carrier of nor an established cure for! That just simply doesn't make sense.

During the epidemic year of 1935 there were 72 deaths from poliomyelitis in North Carolina, as compared—the very same year—with 164 from the preventable disease of diphtheria.



HELEN LUCILE REGAN

6 months, weight 15½ lbs.

Daughter of Mr. and Mrs. Woodrow Regan

It is to be hoped that none of you will be led to construe this article as an attempt to minimize the seriousness of poliomyelitis, for it is **not**. At the same time, one should not allow an outbreak of poliomyelitis to make him lose sight of the seriousness of diphtheria, which is a **continuing** disease, while the increased incidence of polio is occasional. Normally, there occur in North Carolina an average of 75 cases of poliomyelitis each year, while the average number of diphtheria deaths (to say nothing of the cases) per year since the first World War has been 227. During the same period polio deaths have averaged just 20 each year.

Diphtheria deaths focus attention upon those who are allowed to die because of parental neglect. Any child who has not been immunized against diphtheria and who contracts the disease and dies as the result is a victim of — shall we say? — criminal neglect. Any parent who, seeing his or her infant about to be run over by an automobile—who could,

but who refused to rescue that child, would certainly be indicted in the court of public opinion, if not in some court of law, on the charge of criminal negligence.

Are you the parent of a child who should have, but has not, been immunized against diphtheria? If so, are you willing to continue that child in jeopardy? And if the child should contract diphtheria and die, would you be willing to assume the responsibility—which would be yours, whether you assumed it or not?

These are questions which should command your serious consideration.

The most destructive war of all times is now reaching (or has reached) a climax. To the most pessimistic the end appears in sight at this writing. Statesmen and politicians are discussing permanent peace, even as they were when many who are fighting this war were infants. Many of you have sons in the service, some of them fighting in Europe, some in the Pacific, and some undergoing training in this country.

Others, much younger in most instances, are parents of infants and small children. You hope, with all the earnestness of your hearts, that there will never be another war, either in your lifetime or in the lifetime of your children. You hate the very thought of war, especially as it might effect the future of your children. You would not have your children exposed to any foreign foe. And yet, many of you—all too many—are exposing those very same children to diphtheria, a preventable disease, by not having them immunized. Is that fair? Even if you are unwilling to obey **statutory law**—are you inadvertent also to the **moral law**, which commands you to protect those over whose lives Almighty God has given you custodianship? No doubt, you have had them baptized; you provide them with adequate clothing, in order that they may make a good showing among their companions at school and Sunday school. You see that their hair is neatly cut—and you would not, under any consideration, permit one of them to bite his fingernails. You would not permit him to drink contaminated milk or water, if you

knew it. Then, why, in fairness to your children, permit them to continue to be potential victims of diphtheria, now present in many sections of North Carolina, when you do not have to?

Protection for them is just as close as your family doctor; or, if you are unable to pay, just as near as your local health officer or your county physician. Why neglect the matter any longer? Take your unimmunized child, or children, to your family physician, to your county health officer, or your county physician today. You will find any one of

these doctors willing—and anxious—to administer the protection to which these little ones in your care are entitled.

Diphtheria toxoids are prepared and distributed to physicians by your State Board of Health, through the State Laboratory of Hygiene, one of the most up-to-date institutions of its character in the entire United States. Its facilities are at your command, through your physician, whether a private practitioner of medicine or a public health officer.

Notes & Comment

By THE ACTING EDITOR

TO our next General Assembly will be presented a program for the improvement of medical care in North Carolina. In the opinion of many of our outstanding citizens this problem ranks in importance with the good school program of 1900-1920 and the good roads program of 1920-1940. Months of thought and study by many of the best minds in the State, both lay and medical, have been devoted to the development of this program.

North Carolina is not peculiar in having a medical care problem—practically every community in the world has a medical care problem. There is no universal solution to this universal problem. Regardless of the size of the community there are some aspects of the problem which are its own particular concern. It is a truism that we cannot have service without facilities with which to render the service. We cannot have good medical care without adequately trained physicians. These physicians must have their work shops—the hospitals and the laboratories.

The medical care problem is complex. It cannot be reduced to two or even three simple factors. We can evaluate our position and to some extent the magnitude of our problem by the use of standards. There are generally accepted minimum standards for the distrib-

ution of hospitals and physicians. These accepted minimum standards are that there should be four hospital beds available for each 1000 people in the community and one physician to each 1000 people.

In North Carolina we find that the State as a whole has two and four-tenths beds per thousand population; that only six counties in the State have more than four beds per thousand and could reasonably be expected to share their facilities with their neighbors. There are six additional counties which could by these standards care for their own. Eighty-eight counties, therefore, are definitely deficient in hospital facilities. Eighty-two have less than three beds per thousand. Sixty-five have less than two beds per thousand—forty have less than one bed per thousand, and thirty-four have no hospital facilities whatsoever. From the standpoint of physicians there is not a single county in the State which measures up to the standard of one active physician per thousand population. Only three have more than one physician to each 1500 people. Only fifteen have one physician for each 1500-2000 people. Forty counties have less than one physician to each 3000—twenty have less than one physician to 4000 people and six counties have less than one physician

to 6400 people. Rural sections have relatively fewer physicians than urban sections. In 1914 there were 1,225 physicians living in rural areas. By 1940 the number of rural physicians had decreased to 719. Seventy-three per cent of the State's population is rural with only thirty-one per cent of our physicians to serve them. The situation in rural communities is even more desperate than is indicated by numbers. In 1914—14.6 per cent of the rural physicians were over fifty-five years of age. In 1940—37.5 per cent were over fifty-five. Young physicians are not going into rural communities to replace the old men.

In the North Carolina Medical Journal for November, 1944, are published reports from committees which Governor Broughton appointed to develop our program for medical care. The following excerpts from these reports should help our people in analyzing the merits of the proposal:

"We have kept in mind from the beginning the paragraph from Governor Broughton's recommendations to the trustees of the State University which we have considered fundamental in the program;" "The ultimate purpose of this program should be that no person in North Carolina shall lack adequate care or medical treatment by reason of poverty or low income." If such a goal is to be reached one must assume in the beginning that the plan adopted must be built on the theory and principle that the well and strong desire to help the sick and the weak. Likewise those more favored economically must not expect quite so large a return from such a plan as those less fortunate. However, every effort should be made to adopt a program which will benefit all classes of citizens and one that has as its goal the general improvement of civic health.

"The State of North Carolina has never supported complete medical education for its citizens. It has not at any time contributed to

medical research or to the training of any specialized type of medical workers. Aside from the work of the Health Department the State has never appropriated money for the general health of its citizens. The State of Virginia spends approximately \$800,000 per year in maintaining general hospitals and contributing to two medical schools. Iowa spends over \$1,000,000 per year for general hospitalization of its indigents and citizens of low income and, in addition, almost \$500,000 per year in the conduct of a four-year medical school. Louisiana with a per capita wealth far below that of North Carolina spends approximately \$5,000,000 per year on its system of charity general hospitals and in addition maintains a large medical school. The total expenditure of North Carolina for the maintenance of medical education, medical research, and training of medical workers is represented in the sum of less than \$75,000 per year, which is appropriated to the two-year medical school at Chapel Hill. This is exclusive of a small appropriation to the Public Health School. The State makes no contribution to general hospitalization and aids in no way to make general medical facilities available.

"It would seem obvious that there is a need for general improvement in medical care in the State and that the problem may be analyzed as follows:

- (1) Need of more doctors and allied medical workers
- (2) More hospital beds
- (3) Better distribution of both hospitals and doctors
- (4) Education of the public to seek and to utilize the facilities offered
- (5) Financial support by the State of community-owned hospitals so that their services and general usefulness may be expanded.

